Operating and Maintenance Instructions

for

TABLE, OPERATING, FIELD

Part No. E99-001

6530-00-142-9239

ATLANTIC INDUSTRIES, INC.

P.O. BOX 1169

999 JENKINS ROAD

HARDEEVILLE, SOUTH CAROLINA 29927-1169

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SECTION I
INTRODUCTION

1.1 SCOPE.

1.1.1 These instructions are published for the use of operating and maintenance personnel to whom the E99-001 Field Operating Table is issued. They provide all necessary information for the operation, maintenance and repair of the equipment. Also included is a Replacement Parts section, which illustrates and identifies all replacement parts of the equipment by part number and description.

1.1.2 Recommendations for improvements to this equipment and/or corrections of errors in these instructions should be sent to the following department:

U.S. Army - Medical Equipment
Research and Development Command
Office of the Surgeon General
Washington, D.C. 20315 (ATTN: MEDDH-M)
OR
Commander, Defense Personnel Supply Center
2800 South 20th Street
Philadelphia, Pa. 19100 (ATTN: DPSC-ATP)

1.2 GENERAL DESCRIPTION.

1.2.1 The Field Operating Table covered by these instructions is manufactured by Atlantic Industries under their part number E99-001. The operating table is a compact, easily transportable unit specifically designed for field use and incorporates all the features necessary for the performance of major surgical operations. When folded for storage or shipment, the operating table and its accessory box all conveniently and securely strapped into the shipping container (Figure 1-1) furnished with the unit.

1.2.2 The operating table is completely mechanical and contains no electrical, hydraulic or pneumatic elements. All controls and locking devices are hand-operated and easily accessible. The all-welded base is designed to be water-filled for maximum stability and is equipped with four large caster wheels for mobility and four retractable foot pads for stationary positioning during operation. (See Figure 1-2.)

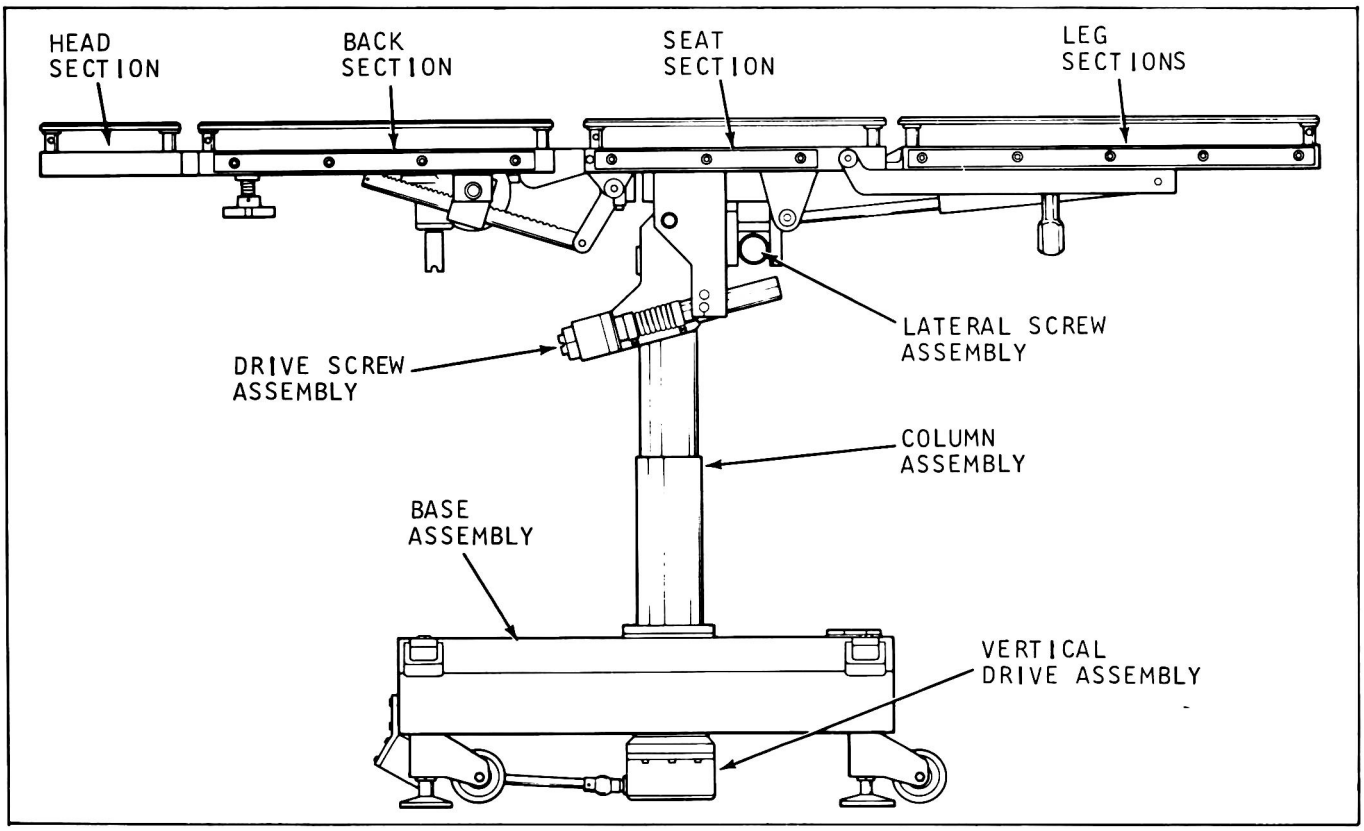


Figure 1-2. Operating Table Major Components

1.2.3 The top frame of the operating table (Figure 1-2) consists of a head section, a back section, a seat section and two leg sections. These sections can be placed in various surgical positions by means of position controls and locking devices. All sections are furnished with x-ray tops which can be quickly and securely installed without the use of tools. Mattress pads are also provided for each section.

1.2.4 The seat section is solidly mounted on a saddle-like trunnion at the top of the telescoping column. With the column fully raised, the height to the top surface of the x-ray top is 39 inches. With the column fully retracted, the height is 27 inches. Complete dimensional data for the operating table is listed in paragraph 1.3, Leading Particulars.

1.2.5 Accessory items furnished with the operating table are listed and illustrated in Figure 10 in the Replacement Parts section at the rear of this instruction book.

1.3 LEADING PARTICULARS.

Unit Complete, Crated for Shipment:

Weight	approx. 490 pounds
Overall dimensions	31"w by 36"lg by 48"h

Accessory Storage Box:

Weight (empty)	approx. 15 pounds
Weight (packed)	approx. 60 pounds
Overall dimensions	9-1/4"h by 23-1/2"w by 31"lg

Shipping Case Only:

Weight	approx. 110 pounds
Overall dimensions	28"w by 33"lg by 42"h

Operating Table Physical Data:

Weight (base drained)	approx. 225 pounds
Length (head retracted)	72-1/2 inches
Length (head extended)	78-1/2 inches
Width (legs closed)	23 inches
Width (legs spread)	42 inches
Maximum height	39 inches
Minimum height	27 inches
Base water capacity	10 gallons

Operating Table Operational Data:

Head Section	Adjustable to 45 degrees upward and 90 degrees downward from horizontal.
Back Section	Adjustable to 90 degrees upward and 40 degrees downward from horizontal.
Leg Sections	Adjustable to 102 degrees downward from horizontal. Spread-eagle angle between legs variable from zero to 60 degrees.
Lateral (Side) Tilt	15 degrees left and right
Trendelenburg	15 degrees
Reverse Trendelenburg	15 degrees
Erect "V" Position	90 degrees maximum
Inverted "V" position	220 degrees maximum

SECTION II
PREPARING THE UNIT FOR USE

2.1 UNPACKING THE UNIT.

a. Cut the metal strap and dismantle the wooden shipping crate, being careful not to thrust pry bars or similar tools through the sides of the crate.

b. Unlatch and remove the shipping case top.

c. Remove the accessory storage case and place it to one side.

d. Unfasten the hold-down straps which secure the base of the operating table to the bottom section of the shipping case, and lift out the operating table.

e. Raise all four foot pad pedals (Figure 3-1) so that the unit is resting on the caster wheels, and roll the unit to its intended location. Then press all pedals to the down and lock position so that the unit is resting on the foot pads.

f. Remove the tape strips used to secure the release pins to the operating table.

2.2 PREPARATION FOR USE.

a. Raise the back section until the release pins (Figure 4-1) can be inserted through the V-shaped cast hangers on the underside of the seat section and the pivot holes of the back link assemblies.

b. Raise the leg sections to the horizontal position. They will lock in automatically in this position.

c. Check to see that the drain plug (located beneath the base, directly below the filler plug) is present and securely tightened. Remove the filler plug and fill the base with fresh water; then reinstall the filler plug.

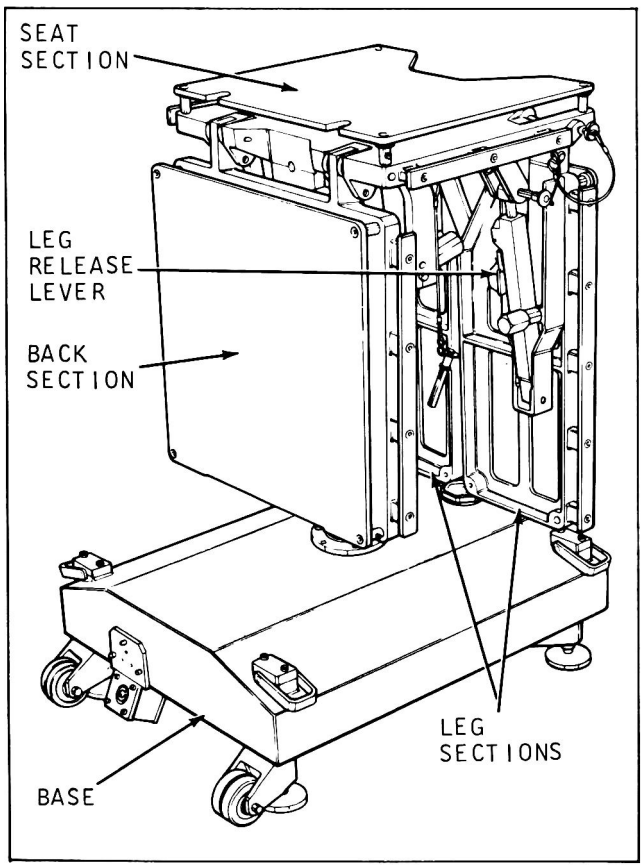


Figure 2-1. Operating Table Removed from Shipping Case

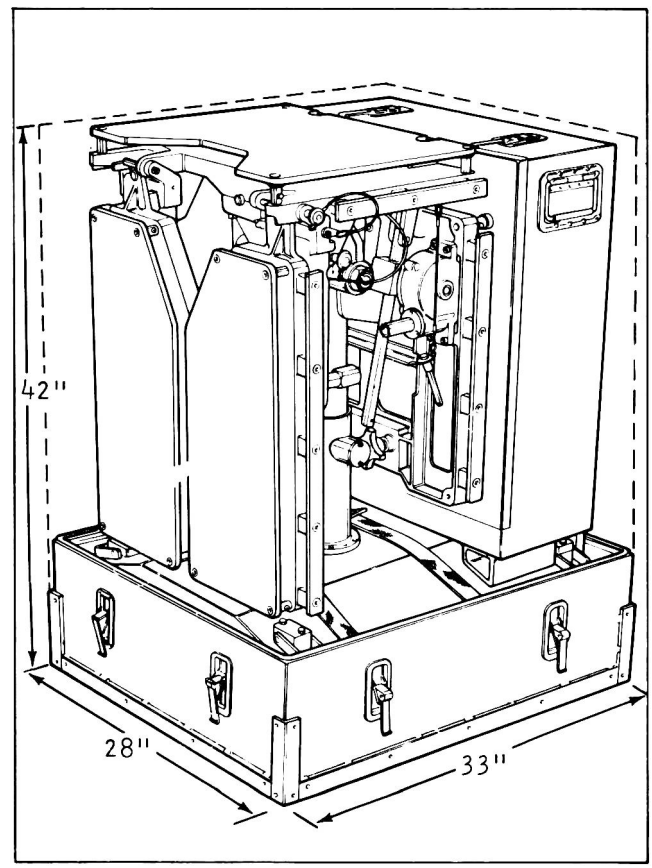


Figure 2-2. Overall Dimensions of Operating Table and Case

d. Remove the head section from the accessory storage case. Loosen the clamp knobs beneath the front end of back section and guide the head extender rods into the bearing holes in the front edge of the back section. Press the head section all the way in, and tighten the clamp knobs securely.

e. If mattress pads are to be used, remove them from the accessory storage case. The x-ray tops must be removed temporarily so that the elastic corner loops of the pads can be looped around the mounting pins of the formica tops.

2.3 PREPARATION FOR STORAGE OR SHIPMENT.

a. Loosen the clamp knobs which secure the head section extender rods and remove the head section. Pack the head section and all accessory items (see Figure 10, Replacement Parts section) in the accessory storage case. Retighten the clamp knobs.

b. Remove the drain plug beneath the base and drain out all the water. Removal of the filler plug will accelerate the draining process. When the base is completely drained, reinstall both plugs. NOTE: In case of loss, base plugs can be replaced with standard 55-gallon inlet and outlet bung plugs.

CAUTION: The base must be drained to prevent possible freeze-up during shipment or storage, thereby causing irreparable damage to the tank.

c. Using the control handles provided (Section III), elevate the operating table to its maximum height and level the seat section exactly in both directions.

d. Crank down the back section until the back link assemblies lock against the back casting. Pull the two release pins from the pivot holes of the back link assemblies, and carefully lower the back section to the full "down" position as shown in Figure 2-1. It is important that the back section is absolutely level in all directions so that the section clears all brackets when it is lowered. Secure the loose release pins to the operating table with strips of tape.

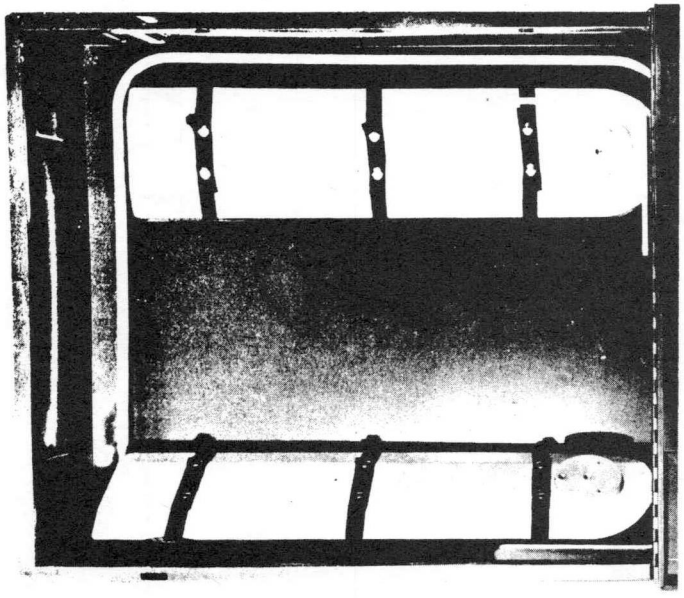
e. Pull out the two release pins which are inserted through the pivot holes of the back link assemblies and carefully lower the back section to the full "down" position as shown in Figure 2-1. Secure the loose release pins to the operating table with strips of tape.

f. Make certain that all foot pad pedals are down, with the unit resting on all four foot pads. Place the operating table in the bottom section of the shipping case and tighten the retaining straps securely across the base.

g. Make certain that the accessory storage case is securely latched. Place it on top of the base as shown in Figure 1-1 and install the shipping case top. Secure all latches. Shipping dimensions for the unit are shown in Figure 2-2.

h. If the unit is to be shipped, prepare a suitable wooden crate of one-inch lumber with two-by-four braces and corner supports. Band the crate in both directions with metal straps.

ILLUSTRATED GUIDE for REPACK of ACCESSORY STORAGE CASE



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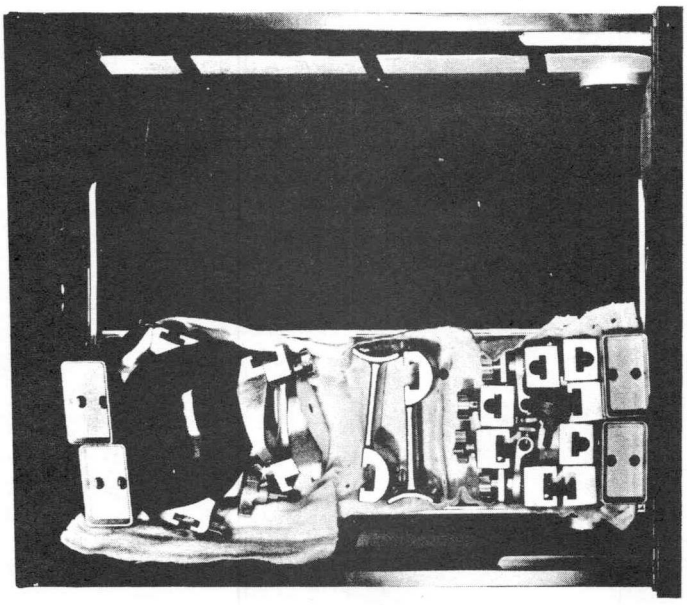

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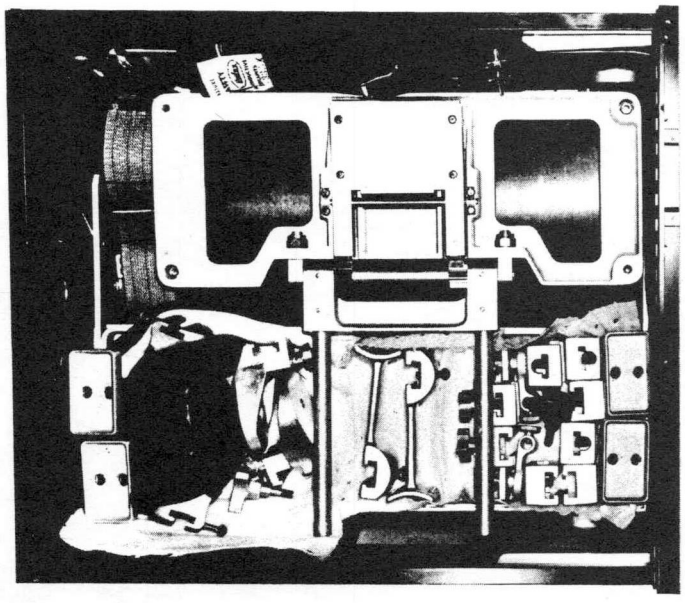

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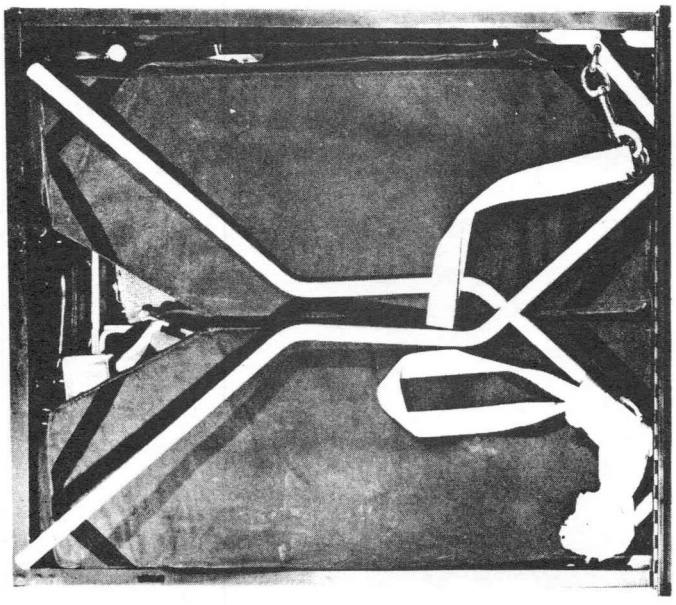

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SECTION III
OPERATION

3.1 OPERATING CONTROLS.

3.1.1 FOOT PAD CONTROL (Figure 3-1). The foot pads are raised and lowered by means of the U-shaped pedals located on the four corners of the base. When the pedals are down, the foot pads should rest on the floor with a maximum of 1/8-inch clearance below the caster wheels (paragraph 3.4.2, step a). With pedals raised, the wheels should rest on the floor.

3.1.2 ELEVATION CONTROL (Figure 3-1). The height of the operating table is adjusted by engaging the Trendelenburg (long) handle with its control at the head end of the base. Turn the crank clockwise to raise the table; counterclockwise to lower the table.

3.1.3 TRENDELENBURG CONTROL (Figure 3-2). The Trendelenburg position (head up or head down) is adjusted by engaging Trendelenburg (long) handle (shown in Figure 3-1) with the drive screw control. Counterclockwise rotation of the handle causes Trendelenburg (head down) positioning; clockwise rotation of the handle causes reverse Trendelenburg (head up) positioning.

3.1.4 LATERAL (SIDE TILT) CONTROL (Figure 3-2). The side to side tilt of the operating table is adjusted by engaging the lateral (short) handle with the side tilt control shown in Figure 3-2. Clockwise rotation of the handle results in left tilt; counterclockwise rotation results in right tilt.

3.1.5 BACK TILT CONTROL (Figure 3-2). The back section of the operating table is raised or lowered by engaging the lateral (short) handle with the back tilt and turning the handle clockwise (to raise the back) or counterclockwise (to lower the back).

3.1.6 HEAD SECTION CONTROLS (Figure 3-3). The head section can be adjusted to intermediate positions within the range of 45 degrees above horizontal to 90 degrees below horizontal. Press and hold the release plate while moving the head section to the desired position. The head section will lock in place when the plate is released. To extend the head section, loosen the two clamp knobs and pull the head section out to the desired position; then tighten the clamp knobs securely.

3.1.7 LEG SECTION CONTROLS (Figure 3-4). To spread the leg sections, loosen the swivel lock knob by turning it counterclockwise and swing the leg to the desired position; then tighten the lock knob securely. The leg sections can be placed either in the up (horizontal) or fully down (102 degrees downward) positions, with intermediate positions available approximately every ten degrees. To release the leg section, depress the release latch (Figure 2-1) to disengage the lock plunger. While holding the release latch, raise the leg slightly and then lower the leg to the desired position.

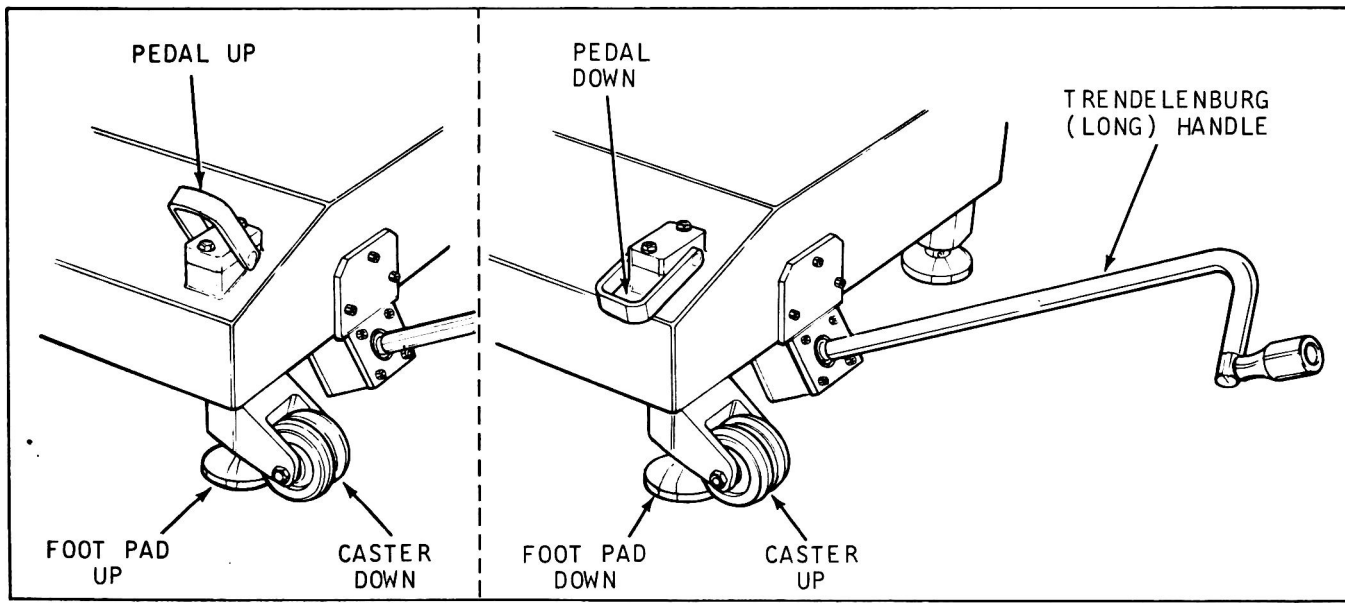


Figure 3-1. Operating Table Controls (View I)

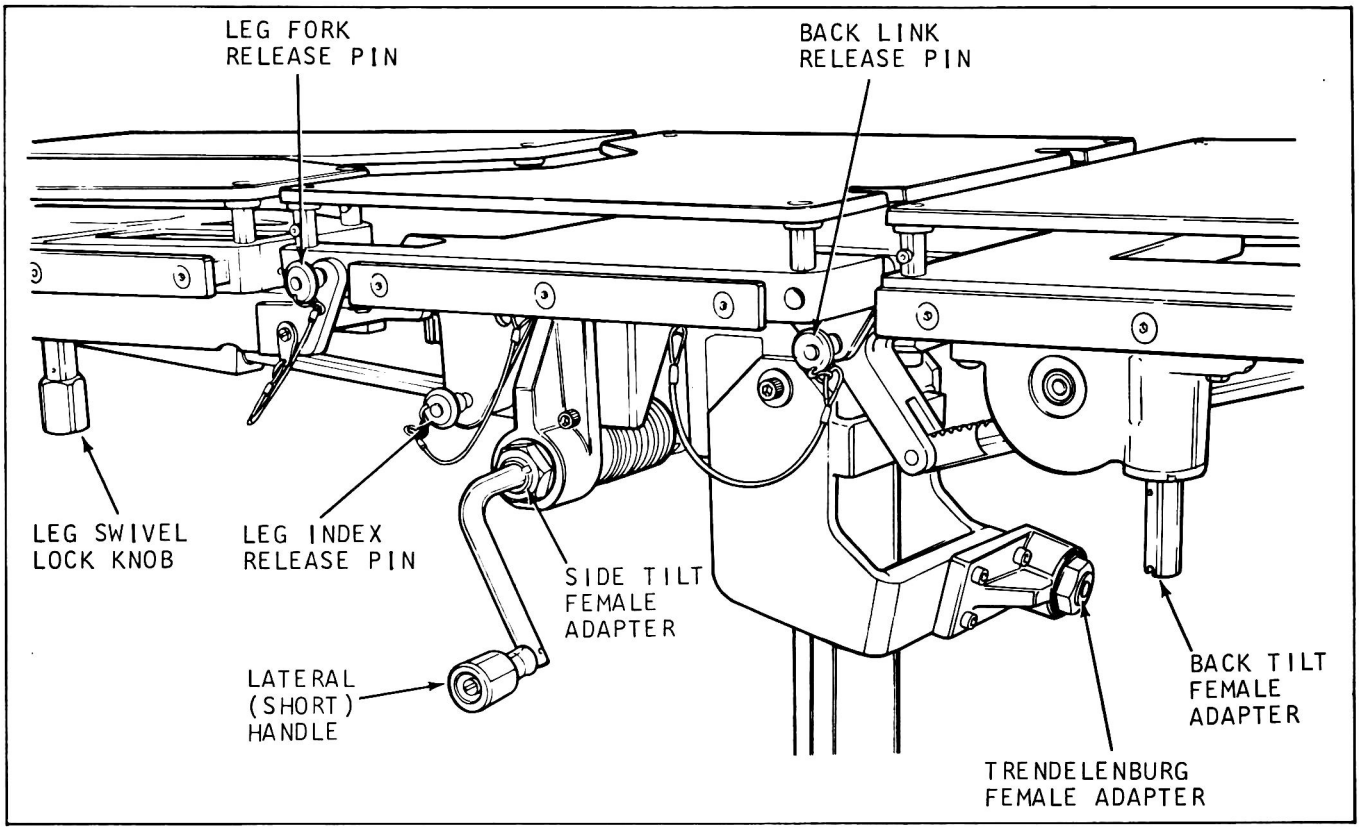


Figure 3-2. Operating Table Controls (View II)

3.2 TABLE POSITIONS AND ARTICULATIONS. The positions and standard articulations that can be assumed by the operating table are shown in Figure 3-5. The controls used to obtain the various positions are discussed in paragraph 3.1.

3.3 OPERATING TABLE ACCESSORIES. Accessories furnished with the operating table are illustrated and listed in the Replacement Parts section (Figure 10). These accessories mount on clamps which slide along the side rails of each table top section and can be locked in any position by means of the lock knobs provided. The restraining straps fold around the side rails.

3.4 OPERATING CHECK-OUT PROCEDURE.

3.4.1 INSPECTION.

a. Inspect the operating table visually for loose or missing parts. Tighten or replace missing parts.

b. Check for water leakage at the drain plug. If excessive leakage is noted and cannot be stopped by tightening the drain plug, remove the plug and cap the opening with the palm of the hand. Remove and replace the drain plug gasket and reinstall the plug. Add water to the base as necessary.

c. Raise the column to the full-up position and check the column to make certain that it is clean and properly lubricated. If cleaning and lubricating is necessary, refer to Section IV.

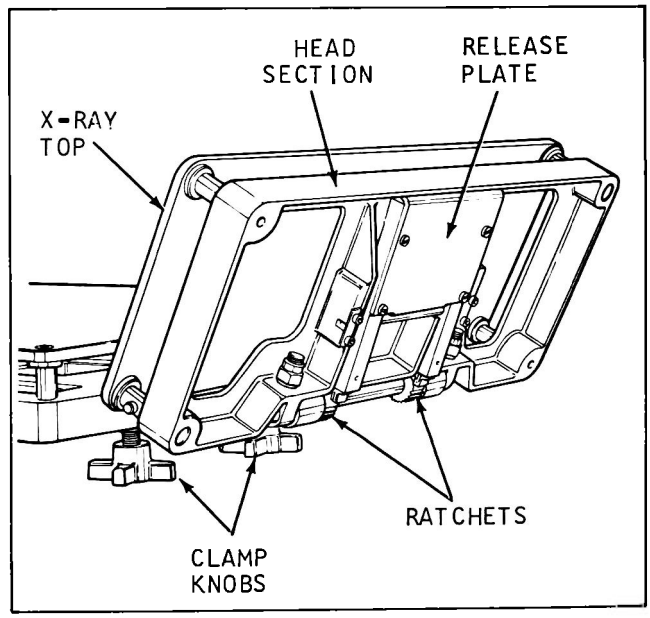


Figure 3-3. Operating Table Controls (View III)

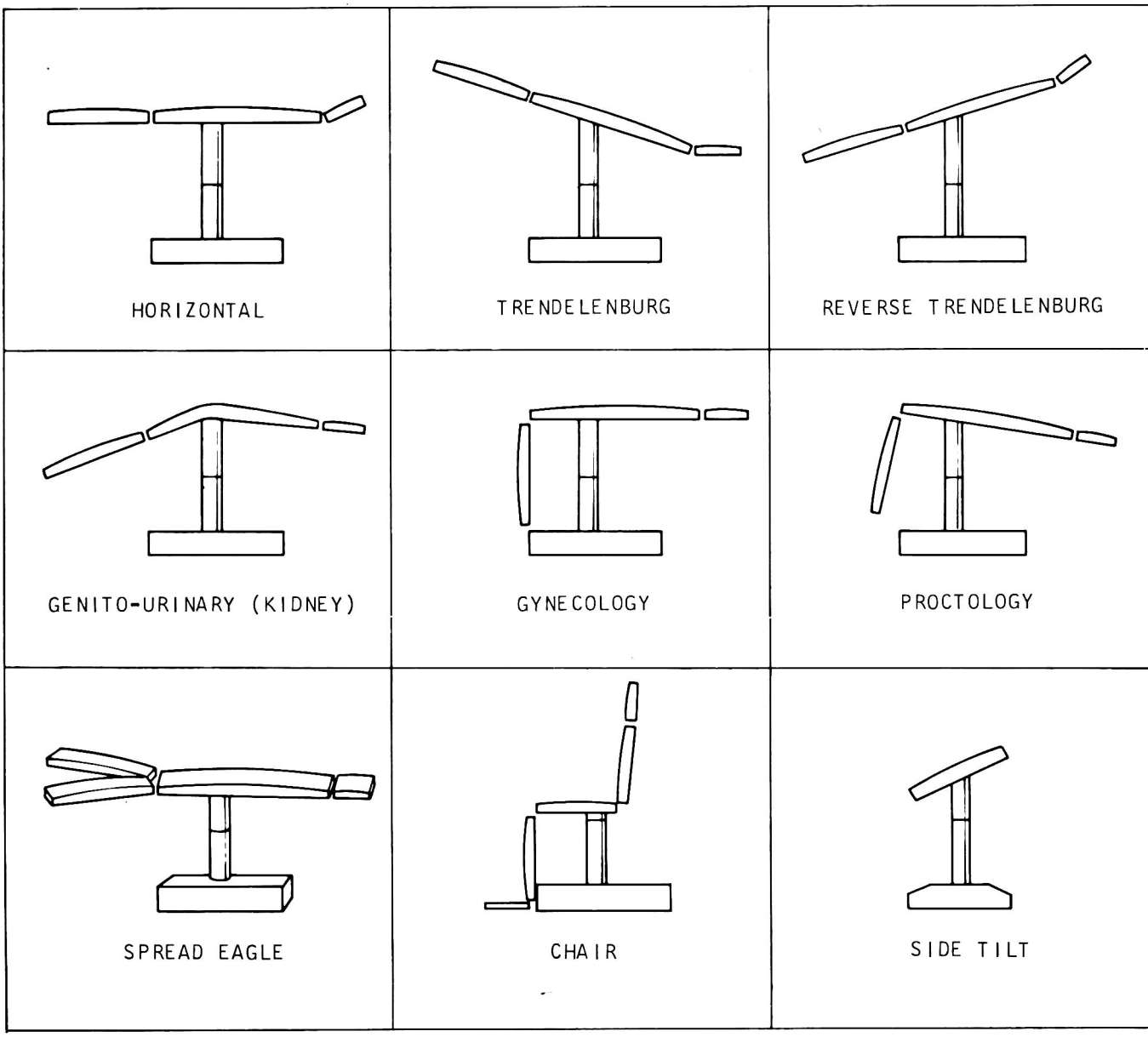


Figure 3-4. Table Positions and Articulations

3.4.2 OPERATIONAL CHECK.

a. With the foot pads down, check the stability of the operating table by rocking it lightly in all directions. Check the clearance between each raised caster wheel and the floor. When fully raised, the caster wheels must not clear the floor by more than 1/8-inch. Too much clearance can cause the pad assemblies to lock in the up position. To adjust, the clearance, grasp the pad and screw the jack shaft into or out of the base.

b. Raise the foot pad pedals and roll the operating table to check for possible binding of the caster wheels. If the wheels do not roll freely, check for the presence of foreign matter jammed between wheels and caster forks. Remove foreign matter.

c. Operate all controls and locking devices discussed in paragraph 3.1 to make certain that they are operating properly and without binding.

SECTION IV
MAINTENANCE AND COMPONENT REPLACEMENT

4.1 CLEANING.

4.1.1 For normal cleaning after operations, follow standard hospital scrub-up and disinfecting procedures. Remove x-ray tops and mattress pads to expose table top sections.

4.1.2 For normal cleaning of exposed operating table surfaces (base, column, rails and castings), use a soft cloth and a hot water-detergent-disinfectant solution. Wring out the cloth before wiping the surfaces.

4.1.3 Before lubricating parts (paragraph 4.2), remove old grease with naphtha or other non-corrosive grease solvent. Remove hardened grease with an orange stick or tongue depresser.

4.2 LUBRICATION. To insure proper operation, the operating table must be lubricated every six months as indicated in the following paragraphs. Where grease is specified, use Lubriplate No. 630-2 multi-purpose grease or equivalent. Lubriplate is prepared by Fiske Bros. Refining Company, Newark, New Jersey. Where oil is specified, use general purpose lubricating oil, Navy Spec. 2135H. Be sure to remove old lubricant (paragraph 4.1.3) before applying fresh lubricant. Lubricate sparingly and always wipe away excess lubricant.

4.2.1 LATERAL AND DRIVE SCREW ASSEMBLIES. The leadscrew of either the lateral screw assembly or drive screw assembly can be exposed by loosening one of the hose clamps on the assembly and pressing the expandable cover to one side. Apply grease sparingly to the leadscrew threads and, with the lateral handle, operate the table in the lateral and Trendelenburg directions to distribute the grease. Wipe away excess grease with a lint-free cloth and resecure the expandable cover to the boot cover by tightening the hose clamp securely.

4.2.2 SLIDING COLUMN. Raise the operating table to its maximum height to expose as much as the column as possible. Wipe the column with a cloth moistened in solvent to remove old lubricant; then lightly lubricate the column with fresh grease. Lower and raise the column to distribute the grease and wipe away excess with a lint-free cloth. Further lubrication of column parts should not be attempted except during depot overhaul procedures. Refer to Section IV, paragraph 4.3.9, for column removal and to Section V, paragraph 5.8 for column repair instructions.

4.2.3 BACK LIFT GEAR RACKS. Remove as much old lubricant from gear rack teeth as possible with a cloth saturated in solvent. Raise and lower the back section to expose the maximum length of the gear racks. Lightly lubricate gear rack teeth with fresh grease and raise and lower the back section to distribute the lubricant. Wipe away excess lubricant with a lint-free cloth.

4.2.4 LINKAGE PIVOT POINTS. Apply one or two drops of oil maximum at each linkage pivot point and wipe the release pins with an oil-damp cloth.

4.3 REPLACING MAJOR COMPONENTS.

4.3.1 X-RAY TOPS. X-ray tops are mounted with their pins seated in corresponding mounting holes in the respective table top sections. To remove, simply depress the release plungers of the two locking posts and lift off the x-ray top.

4.3.2 HEAD SECTION. To remove the head section, loosen the two clamp knobs on the underside of the back section (Figure 3-3) to release the head extension rods; then withdraw the head section. Reinstall the head section in reverse fashion.

4.3.3 LEG SECTIONS. The two leg sections are removed and installed in the same manner, as follows.

a. Raise the leg section to the horizontal lock position.

b. Withdraw the release pin (Figure 3-2) which secures the end of the leg index rod.

c. Support the leg assembly while withdrawing the release pin that secures the leg yoke to the seat section of the table and lift off the leg section.

d. To reinstall the leg section, reverse the above procedure.

4.3.4 BACK SECTION. To remove the back section and lift assembly complete, proceed as follows.

a. Raise the back section to the straight up position for easier access to the mounting parts (Figure 4-1).

b. Withdraw the two release pins which are inserted at the pivot point of the back link assemblies. Lean the back section down on a protective mat or cloth to avoid marring finish of back or seat.

c. Loosen two setscrews (Figure 4-1) located underneath the seat and below the back link pivot pins. Drive out pivot pins and lift off the back section.

d. To reinstall the back section, reverse the above procedure.

4.3.5 BACK LIFT ASSEMBLY. The lift assembly can be disassembled from the back section without removing the back section from the seat. Proceed as follows.

a. Raise the back section to the straight up position as shown in Figure 4-1.

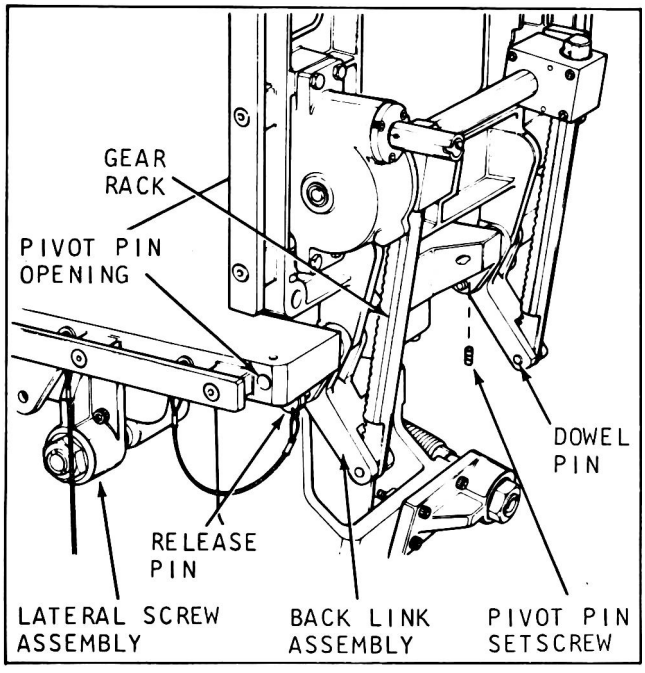


Figure 4-1. Back Lift Assembly Removal

b. Drive out the dowel pin which secures each gear rack to its back link assembly.

c. Support the back lift assembly firmly while removing the four capscrews at the gear box housing end and two longer capscrews at the opposite end. Lift the assembly carefully from the back section.

d. To reinstall the lift assembly, reverse the above procedure.

4.3.6 LATERAL AND DRIVE SCREW ASSEMBLIES. Refer to the Replacement Parts section, Figure 3, for the following instructions.

a. Remove the four hex nuts (14) and capscrews (15) that secure the support block of the drive assembly (19) or (20) to the support plate of the seat section.

b. Loosen the two clamping screws (16) and, while supporting the drive assembly, pry out the two adjusting pins (17) and (18). Lift the drive assembly from the seat section and trunnion.

c. To reinstall the drive assembly, reverse the above procedure.

4.3.7 SEAT SECTION, TRUNNION AND BRACKET. Refer to the Replacement Parts section, Figure 2, for the following instructions.

a. Remove the leg sections (paragraph 4.3.3), the back section (paragraph 4.3.4) and the lateral screw assembly (paragraph 4.3.6).

b. Support the seat section while removing four capscrews (21) and two bearing blocks (22). Lift off the seat frame (23) and remove drive screw assembly (paragraph 4.3.6).

c. Remove the two retaining rings (26) and nylon washers (27) and withdraw the Trendelenburg pin (28). While an assistant supports the trunnion (32), remove the two capscrews (29) and washers (30) and drive out the lateral pin (31). Lift off the trunnion, being careful not to lose the nylon washer (33) located between the hanger arm of the trunnion and the support arm of the drive screw bracket (35).

d. Remove four capscrews (34) which fasten the drive screw bracket (35) to the top of the column.

e. To reinstall the bracket, trunnion and seat section, reverse the above procedure.

4.3.8 VERTICAL GEAR BOX. Refer to the Replacement Parts section, Figures 3 and 8, for the following instructions.

a. Using two or three assistants, carefully lower the operating table so that it is resting on its side, with the table top protected with mats to prevent damage.

b. Drive out the spring pin (1, Figure 3) that secures the universal joint (2) to the end of the vertical drive gear shaft. Discard the pin and use a new one during installation.

c. Remove the four capscrews (1, Figure 8) and the gear box cover (2, Figure 8).

d. Refer to Figure 3. From inside the gear box, remove the three machine screws (14) that secure the gear box housing to the bearing retainer at the lower end of the sliding column, and the five capscrews that secure the gear box housing to the underside of the base. Carefully lift off the vertical gear box.

e. To reinstall the vertical gear box, reverse the above procedure.

4.3.9 COLUMN ASSEMBLY. Refer to the Replacement Parts section, Figures 2 and 3, for the following instructions.

a. Remove the head section (paragraph 4.3.2) and the leg sections (paragraph 4.3.3).

b. While several assistants support the assembled back section and seat section, remove the four capscrews (item 34, Figure 2) which secure the drive screw bracket (35) to the top of the column. Remove this entire assembly from the column.

c. Remove the vertical gear box as instructed in paragraph 4.3.8.

d. Refer to Figure 3 and remove the six capscrews which secure the mounting flange of the column to the top of the base assembly. Lift out the column assembly.

e. To reinstall the column assembly, reverse the above procedure.

NOTE

For component repair instructions (disassembly and reassembly), refer to Section V, following.

SECTION V
REPAIR PROCEDURES

5.1 TOOLS REQUIRED. The following tools are recommended for the disassembly procedures covered in this section.

TOOL	SIZE OR NO.
Box and Open End Wrench	3/4-in. and 1-1/2 in.
Spanner Wrench	Adjustable
Socket Setscrew Wrenches	5/32 in., 7/32 in., 1/16 in., 3/16 in., 5/16 in., 1/8 in., 1/4 in.
Snap Ring Assembly Pliers	Waldes-Kohinoor P/N 1349
Drift Punches	3/32 in., 5/32 in., 7/32 in. and 5/16 in. diameter
Standard Pliers	Medium
Standard Screwdrivers	1/4 in. blade, 3/8 in. blade
Phillips Screwdrivers	Nos. 1 and 2
Standard Hammer	Medium
Soft Face Hammer	Medium
Vise	Medium, with soft jaw protectors

5.2 GENERAL REPAIR PROCEDURES.

5.2.1 Each major component of the operating table is dealt with separately in the following paragraphs. Refer to paragraph 4.1 for component removal procedures.

5.2.2 When repairing a component to correct a specific trouble, disassemble only to the point where the replacement of the faulty part can be affected. When complete overhaul of a component is indicated, do not disassemble the component beyond the breakdown shown in the related exploded view illustration in the Replacement Parts section.

5.2.3 Always use the proper size tools (paragraph 5.1) during disassembly procedures. Attaching parts (screws, nuts, etc.) should be loosely assembled to the removed part or threaded hole to prevent loss. Spring pins should be discarded and replaced with new pins during reassembly.

5.2.4 Except as specifically noted, clean and disassembled parts with naphtha or other non-corrosive grease solvent and dry parts with a low-pressure jet of compressed air or with a soft, lint-free cloth. When lubrication is specified, apply lubricant during the reassembly procedure. Lubricants must be applied sparingly and must be of the type specified in paragraph 4.2.

5.3 HEAD SECTION REPAIR (Figure 4, Section VI).

5.3.1 DISASSEMBLY.

a. Remove four screws (1) and lift off the ratchet release plate (2).

b. Remove four screws (3) and the two pivot retainer plates (4). Disassemble the actuator bars (5), springs (6), washers (7) and pivot rod (8) from the head frame. Loosen the setscrew (9) and disassemble the actuator pawl (10) from each actuator bar.

c. Each pivot bearing assembly (20) is secured to the head frame (21) with a castle nut (19). Inspect the sleeve bearings (20A) for pits, burrs, or serious scoring and, if so damaged, press them from the bearing block (20B).

d. Drive out the two dowel pins (11) and loosen setscrews (12) in head ratchets (15). Disassemble pivot shaft (13), head frame pivot (14), ratchets (15) and square keys (16) from the head frame (21). To remove extension rods (18), drive out dowel pins (17).

5.3.2 REASSEMBLY.

a. If the sleeve bearings (20A) were replaced, press new bearings into the bearing block (20B). Assemble the pivot bearing assemblies (20) to the head frame (21). Install and tighten the castle nuts (19) finger tight.

b. Hold the head frame pivot (14) between the two pivot bearings and insert the pivot shaft through one bearing and one ear of the pivot. Install the two head ratchets (15) loosely on the pivot shaft while pressing the shaft on through the remaining pivot ear and bearing.

c. Turn the pivot shaft (13) so that both key slots are facing up and check to see that the ends of the shaft extend equally beyond the face of each pivot bearing (20). Install but do not tighten the two setscrews (12). Assemble the square keys (16) into the

key slots of the shaft and slide the head ratchets (15) in toward the ears of the head pivot until they are secured by the keys. Leave sufficient space (1/32 to 1/16 inch) between the ratchet face and pivot ear to eliminate binding. Tighten setscrews (12), drive in dowel pins (11) and tighten castel nuts (19) securely.

d. Assemble the actuator pawls (10) into the actuator bars (5) and tighten the setscrews (9) securely. Place a spring (6) in the cup like recess of the head frame below the front end of the actuator bar. Assemble the nylon washers (7) and actuator bars (5) to the pivot rod (8) and position these parts on the head frame. Make certain that the top ends of the spring (6) are engaged in the recesses of the actuator bars. Install the two pivot retainer plates (4) and secure each with two screws (3).

e. Attach the ratchet release plate (2) to the actuator bars with the screws (1).

f. Press and hold the release plate (2) while moving the head pivot (14) up and down. The pivot must move smoothly and without interference from the actuator pawls (10). With the head pivot in a partially-up position, release the ratchet release plate. The actuator pawls should engage the head ratchets to hold the pivot in position. If necessary, loosen the setscrews (9) and reposition the actuator pawls (10) to obtain more positive latching action.

5.4 LEG SECTION REPAIR (Figure 5, Section VI).

NOTE

The right-hand and left-hand leg assemblies are identical, with all parts interchangeable, except for the leg frames (item 22, Figure 5).

5.4.1 DISASSEMBLY.

a. Drive out the spring pin (1) which secures the leg index assembly (2) to the leg support (19). Drive out the dowel pin (3) and remove the release handle (4) and compression spring (5) from the index housing (11). Drive out the spring pin (6) and separate the plunger (7) from the release handle. Withdraw the index rod (8) from the index housing and drive out the spring pin (9) to separate the pivot block (10) from the index rod.

b. Drive out spring pin (12) and remove the lock knob (13), clamp screw (14) and nylon washer (24) from leg support (19) and leg assembly (22). Remove retaining ring (16) and the pivot pin (17). Be careful not to lose the nylon washers (15) and (18) located between the leg support and leg assembly. Remove five screws (20) which attach the leg rail (21) to the tapped bosses of the leg assembly.

5.4.2 REASSEMBLY.

a. Secure the leg rail (21) to the tapped bosses of the leg assembly (22) with the five flat head screws (20).

b. Assemble the pivot block (10) to the index rod (8). Line up the pin holes and secure these parts with a new spring pin (9). Lightly grease the ratchet teeth of the index rod. Insert the index rod into the index housing (11) with the ratchet teeth facing toward the mounting boss for the plunger (7).

c. Engage the ear of the release handle (4) with the slot in the plunger (7) and, with pin holes aligned, install a new spring pin (6). Be sure that the inner end of the plunger is oriented as shown in the inset of Figure 5 before installing the spring pin (6).

d. Lightly grease the tip of the plunger. Assemble the plunger into the index housing and, with the spring (5) captivated as shown in the Figure 5 inset, secure the release handle (4) between the ears of the index housing with the dowel pin (3). Secure the lower end of the index housing to the leg support assembly (19) with the spring pin (1).

e. Lightly grease the machined surface of the swivel boss of the leg. Place the nylon washers (15) and (18) in position on the leg assembly (22) and carefully assemble the leg support (19) on the leg assembly. Install the pivot pin (17) and retaining ring (16). Install the nylon washer (24) on the clamp screw (14) and assemble the clamp screw and lock knob (13) to leg support and leg. Drive in a new spring pin (12).

5.5 BACK LIFT ASSEMBLY REPAIR (Figure 6, Section VI).

5.5.1 DISASSEMBLY.

a. Drive out the dowel pin (4) that secures each back link assembly (5) to the pivot end of each gear rack (38). Remove the six capscrews (6) and (7) and lift the complete back lift assembly (9) from the back frame (8).

b. Remove the three capscrews (10) which secure the bearing retainer (11) to the gear box housing (27). Grasp the crank handle adapter (13) and, with an unscrewing motion, remove the worm gear shaft (21) and its assembled parts (11 through 20) from the gear box housing. Disassemble all parts from the worm gear shaft. The expansion plug (22) need not be removed from the housing.

c. Remove the support block (23) and spacer (24) from the end of the pinion shaft (45). Inspect the bearing (25) for excessive wear or damage and, if in need of replacement, press it from the support block.

d. Remove the four capscrews (26) and withdraw the gear box housing (27) from the end of the pinion shaft. Inspect the bearing (28) for excessive wear or damage and, if in need of replacement, press it from the housing. Loosen the two setscrews (29) and disassemble the worm wheel gear (30), the square key (31), the gear box cover (32) and the spacer (35) from the pinion shaft. Inspect the cover bearing (33) and dowel pins (34) for damage and, if in need of replacement, press them from the cover.

e. Remove the four capscrews (36) which secure each cover assembly (42) to the gear rack housings (37). Remove the housings, with gear racks (38) from the pinion shaft. Withdraw the gear racks from the housings. Inspect the sleeve bearings (37A) and (38A) for excessive wear and, if in need of replacement, press them from the housings and gear racks respectively.

f. Disassemble the spur gears (40), square keys (41), cover assemblies (42) and spacers (44) from the pinion shaft (45). Inspect the cover bearings (42A) and dowel pins (43) for damage and, if in need of replacement, press them from the covers.

5.5.2 REASSEMBLY.

a. If bearing replacement was necessary, new bearings are to be installed as follows: Bearing (42A) must extend no more than 0.060 inch beyond inner face of cover (42B). Both ends of bearing (38A) must be flush with gear rack (38B). Inner end of bearing (37A) must be 1.320 inch (+0.010 inch) from cover mounting surface of gear rack housing (37B). Outer end of roller bearing (33) must be flush with boss of gear box cover (32). Outer end of roller bearing (28) must be flush with boss of gear box housing. Inner end of roller bearing (25) must be flush with face of support block (23).

b. Assemble the sleeve spacers (44) and cover assemblies (42) to the ends of the pinion shaft (45). Press the keys (41) into the key slots of the pinion shaft and assemble the spur gears (40), gear hub ends first, to the shaft. Lightly grease the spur gear teeth.

c. Lightly grease the teeth of gear racks (38) and insert the racks into housings (37). When assembling housings to pinion shaft, gear racks and spur gears must be meshed identically (identical number of gear rack teeth extending from the housings). Fasten the cover assemblies (42) to the housings (37) with the capscrews (36).

d. Assemble the sleeve spacer (35) and gear box cover (32) to the long end of the pinion shaft. Press the square key (31) into the key slot of the pinion shaft and install the worm wheel gear (30), small diameter first, to the shaft. Tighten the two setscrews (29) securely. Lightly grease the teeth of the worm wheel gear. Install the gear box housing (27), securing it to the cover with the four capscrews (26). Assemble the spacer (24) and support block (23) to the opposite end of the shaft.

e. Assemble the retaining ring (20) to the groove of the worm gear shaft. Press the square key (19) into the key slot of the shaft and install the worm gear (18), pressing it up against the retaining ring. Assemble the spacer (17) and ball bearing (16) to the worm gear end of the shaft. Assemble the spacer (15), ball bearing (14) and bearing retainer (11) to the drilled end of the shaft and secure the shaft adapter (13) to the shaft with a new spring pin (12). Lightly grease the worm gear teeth.

f. Coat the mounting face of the retainer (11) with lubricant resisting gasket compound. Carefully insert the worm gear end of the assembled shaft into the gear box housing until the worm gear meshes with the worm wheel and rotate the shaft until the bearing (16) is seated and the retainer is firmly against the gear box housing. Install and tighten the three screws (10).

g. Position the back lift assembly (9) on the back frame (8) and install and tighten the six capscrews (6) and (7). Reassemble the back link assemblies (8) to the ends of the gear racks with the dowel pins (4). Assemble the rails (3) and knobs (1) to the back frame.

5.6 LATERAL AND DRIVE SCREW ASSEMBLIES REPAIR (Figure 7, Section VI).

NOTE

The lateral screw assembly and drive screw assembly are identical in construction with all parts interchangeable except the boot cover (2), the universal joint (15) and the adjustment shaft (19).

5.6.1 DISASSEMBLY.

a. Remove the two capscrews (1) that secure the boot covers (2) and (8). Remove the closed-end boot cover (2).

b. Drive out the spring pin (3) and remove the washer (4) from the leadscrew (13). Loosen the capscrew (5) and unscrew the adjustment nut (6) from the leadscrew.

c. Loosen the hose clamps (7) and remove the straight boot cover (8) and expandable cover (9). Remove three capscrews (10) and the flanged boot cover (11).

d. With a punch or scribing tool, place line-up dots or scribe marks on the universal joints (15), the leadscrew (13) and the adjustment shaft (19). These alignment marks can be used during reassembly to facilitate the installation of the two dowel pins (12). Drive out the dowel pins (12) and disassemble the leadscrew (13), washer (14) and universal joint (15) from the adjustment shaft (19).

e. Loosen the setscrew (16) and unscrew the lock nut (17) from the adjustment shaft (19). Remove the retaining ring (18). Withdraw the shaft and remove the bearings (20), spacer (21), thrust races (22) and thrust bearings (23) from the bearing bracket (24).

5.6.2 REASSEMBLY.

a. Assemble the thrust bearings (23), thrust races (22), bearing spacer (21), ball bearings (20) and adjustment shaft (19) into the bearing bracket (24). Install the retaining ring (18) and the lock nut (17). Secure the lock nut with the setscrew (16).

b. Assemble the universal joint (15) to the end of the adjustment shaft, line up the scribe marks on dots, and install the dowel pin (12). Install the washer (14) on the plain end of the leadscrew (13) and assemble the leadscrew to the universal joint (15). Line up the scribe marks or dots and install the dowel pin (12). Lightly grease the threads of the leadscrew.

c. Install the flanged boot cover (11) and secure it to the bearing bracket with the capscrews (10). Assemble the hose clamps (7), expandable cover (9) and straight boot cover (8) over the leadscrew. Screw the adjustment nut (6) onto the leadscrew. Assemble the washer (4) and a new spring pin (3) to the end of the leadscrew and install the closed boot cover (2). Tighten the two hose clamps (7) and the two capscrews (1).

5.7 VERTICAL GEAR BOX REPAIR (Figure 8, Section VI).

5.7.1 DISASSEMBLY.

a. The capscrews (1) and gear box cover (2) already have been removed to affect the removal of the vertical gear box from the base. Inspect the dowel pins (3) and roller bearing (4) for damage and, if in need of replacement, press them from the cover.

b. Remove the four capscrews (5) and the bearing retainer (6). Straighten the ears of the lock washer (8) and remove the lock nut (7) and lock washer (8) from the worm shaft. With an unscrewing motion, remove the worm shaft (9) from the gear housing. Disassemble the ball bearing (10), retaining ring (11), worm gear (12) and square key (13) from the worm shaft. Press the roller bearing (14) from the gear housing.

c. Withdraw the assembled gear shaft (15) and gears from the gear housing. Remove the thrust races (16) and gears from the gear shaft. Remove the four capscrews (17) and separate the worm gear (18) from the spur gear (19). Inspect the roller bearing (20) for damage and, if in need of replacement, press it from the housing (21).

5.7.2 REASSEMBLY.

a. If roller bearings were replaced, install new bearings as follows: outer end of bearing (20) must be flush with outer face of gear housing. Inner end of bearing (14) must be flush with machined inside surface of gear housing. Inner end of bearing (4) must be flush with machined boss on inside of gear box cover.

b. Assemble the spur gear (19) to the worm gear (18) with the four capscrews (17). Insert the gear shaft (15) through the gears and install a thrust race (16) on each end of the shaft. The shortest shaft end must be at the spur gear side of the assembled gears. Lightly grease the teeth of both gears. Assemble this group of parts into the gear housing with the short shaft end entering the bearing (20).

c. Press the square key (13) into the key slot of the worm shaft (9) and install the retaining ring (11) into the groove in the shaft. Assemble the worm gear (12) to the shaft, pressing it up against the retaining ring. Lightly grease the teeth of the worm gear. Insert the shaft carefully into the gear housing, rotating the shaft as it meshes with the worm gear until the inner end of the shaft has engaged the bearing (14).

d. Assemble the ball bearing (10) to the worm shaft and press it in until the bearing is seated against the shoulder inside the gear housing. Install the lock washer (8) and lock nut (7); tighten the locknut and bend up the ears of the lock washer to secure the nut.

e. Install the bearing retainer (6) with the four capscrews (5). Do not install the gear box cover (2) until the assembly has been mounted to the base.

5.8 COLUMN ASSEMBLY REPAIR (Figure 9, Section VI).

5.8.1 DISASSEMBLY.

a. Remove the screws (1), housing cover (2), spring (3) and column key (4).

b. Remove retaining ring (5) and disassemble worm gear (6), square key (7), thrust washer (8), bearing retainer (9), thrust races (10) and bearing (11) from the end of the sliding column (12). Withdraw the sliding column (12) from the outer column (13). NOTE: These columns are selected for propet fit and must be replaced as a matched pair (see Figure 9).

5.8.2 REASSEMBLY.

a. Lightly grease the entire threaded portion of the sliding column jack shaft. Insert the sliding column (12) into the outer column, greasing the sliding column lightly in the process.

b. Assemble the thrust races (10) and bearing (11) to the end of the sliding column jack shaft. Install the bearing retainer (9) and thrust washer (8) on the shaft.

c. Press the square key (7) into the key slot of the shaft and install the worm gear (6) and retaining ring (5). Lightly grease the worm gear teeth.

d. Lightly grease the inner end of the column key (4). Assemble the column key and spring (3) into the outer column and install the cover (2) and screws (1).

5.9 BASE ASSEMBLY REPAIR (Figure 3, Section VI).

5.9.1 DISASSEMBLY.

a. The drive transfer parts to the vertical gear box can be removed by driving out the spring pin (1) that

SECTION VI
REPLACEMENT PARTS

6.1 GENERAL.

6.1.1 The following pages illustrate and list, by part number and description, all replacement parts for the E99-001 Field Operating Table. Parts are indexed and listed in a suggested order of disassembly to serve as an aid to maintenance and repair personnel.

6.1.2 The Numerical Index at the end of Section VI provides a complete alpha-numerical listing of all part numbers in the replacement parts lists and references the figure and index number, or numbers, in the lists where a full description of the item is given.

6.2 PART NUMBER IDENTIFICATION.

6.2.1 The majority of parts listed in the replacement parts lists are manufactured by Atlantic Industries and are identified by their part number in the part number column. These parts are easily recognizable by their E99 prefix, and the Atlantic Industries manufacturer's supply code number (55732) has not been included in the description of the part.

6.2.2 All parts which meet the requirements of Government standards (AN, MIL, MS) bear the appropriate Government Standard part number (such as MS9047-172). In such instances, the description of the part includes a parenthetical reference to a commercial source and part number, such as (24617 P/N 456693).

6.2.3 Parts furnished by manufacturers and vendors other than Atlantic Industries are identified, in the Part Number column, by the number assigned by that manufacturer or vendor. In such instances, the description of the part will be followed by the manufacturer's five-digit code number. This, in turn, will be followed by the corresponding Atlantic Industries part number. Following is a listing of code numbers and manufacturers used in these parts lists.

MANUFACTURER'S SUPPLY CODE LIST

03705	Apex Machine & Tool Division of Gardner & Denver Company Dayton, Ohio 45402
21335	Fafnir Bearing Company Division of Textron Incorporated New Britain, Connecticut 06050
24617	General Motors Corporation Detroit, Michigan 48202
38443	Marlin-Rockwell Company Division of TRW Incorporated Jamestown, New York 14701
43334	New Departure-Hyatt Bearings Division General Motors Corporation Sandusky, Ohio 44870
60380	Torrington Company Torrington, Connecticut 06790
71041	Boston Gear Works Division of North American Rockwell Corp. Quincy, Massachusetts 02171
72741	Dorman Products Incorporated Cincinnati, Ohio 45227
73682	Garrett, George K., Division of MSL Industries Philadelphia, Pennsylvania 19136
79136	Waldes-Kohinoor Incorporated Long Island City, New York 11101
55732	Precision Products 1000 Railroad St. Windber, PA 15963
86343	Rieke Corporation Auburn, Indiana 46706
88044	Aeronautical Standards Group
88759	A&A Manufacturing Company, Inc. Milwaukee, Wisconsin 53226
96906	Military Standards Division

6.3 HOW TO LOCATE AND IDENTIFY A PART.

6.3.1 If the part number is known, locate that part number in the Numerical Index. Turn to the parts list for the indicated illustration and locate the index number referenced in the Numerical Index. For physical appearance of the part, refer to the same index number on the corresponding illustration.

6.3.2 If the part number is not known, refer to parts list Figures 1 through 3 and locate the desired part by means of its physical appearance and its relationship to other known parts of the unit. When the item in question is part of a repairable subassembly, the parts list will reference a following illustration where a further breakdown of that subassembly may be found.

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		OPERATING TABLE, COMPLETE		
1-1	E99-400	CONTAINER ASSEMBLY, Shipping (see Figure 11 for replacement parts)	1	
-2	E99-200	STORAGE ASSEMBLY, Accessory (see Figure 10 for replacement parts)	1	
-3	E99-001	TABLE, Operating, field	1	
-4	E99-563	. PLATE ASSEMBLY, Formica, head section	1	
-5	AN505C516R10	. . SCREW, Machine (81490 P/N E99-303)	4	
-6	E99-160	. . POST, Fixed	2	
-7	E99-240	. . POST ASSEMBLY, Locking	2	
-7A	N5000-31H	. . . RING, Retaining (79136) (81490 P/N E99-245)	1	
-7B	E99-243	. . . SPRING, Compression	1	
-7C	E99-241	. . . PLUNGER, Locking	1	
-7D	E99-308	. . . SCREW, Machine, button head, 10-32 by 1/4 inch	1	
-7E	E99-242	. . . BUTTON, Locking	1	
-7F	E99-313	. . . BALL, Steel, 1/8 inch diameter	2	
-7G	E99-244	. . . POST, Locking	1	
-8	E99-130	. . PLATE, Formica, head section	1	
-9	E99-564	. PLATE ASSEMBLY, Formica, back section (NOTE A)	1	
-9A	E99-119	. . PLATE, Formica, back section	1	
-10	E99-565	. PLATE ASSEMBLY, Formica, seat section (NOTE A)	1	
-10A	E99-120	. . PLATE, Formica, seat section	1	
-11	E99-566	. PLATE ASSEMBLY, Formica, leg section, R.H. (NOTE A)	1	
-11A	E99-131	. . PLATE, Formica, leg section, R.H.	1	
-12	E99-567	. PLATE ASSEMBLY, Formica, leg section, L.H. (NOTE A)	1	
-12A	E99-132	. . PLATE, Formica, leg section, L.H.	1	

NOTE A: Each of the formica plate assemblies (items 9, 10, 11 and 12) includes four of item 5 and two each of items 6 and 7.

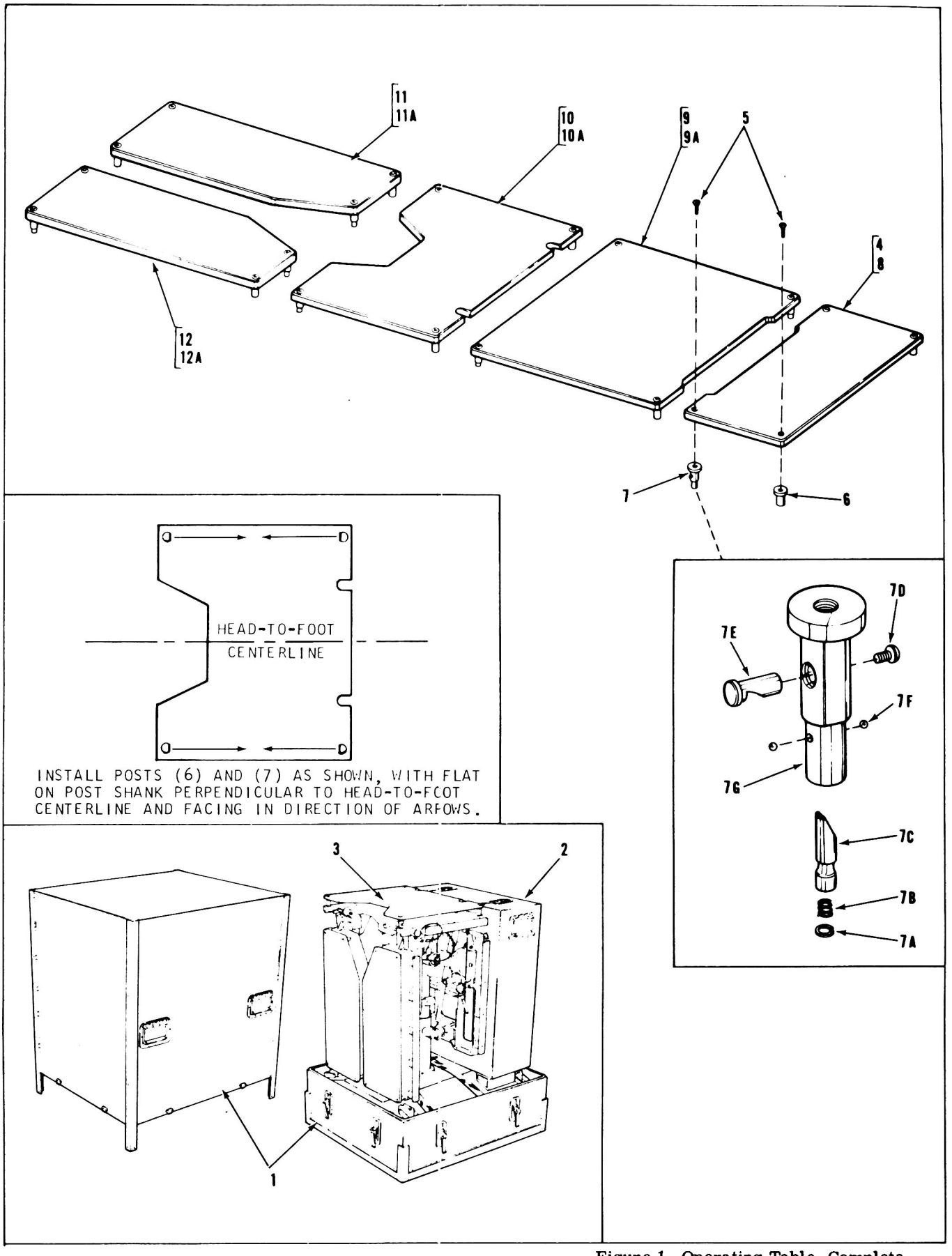


Figure 1. Operating Table, Complete

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		OPERATING TABLE COMPONENTS (CONT)		
3-1	MS9047-133	. PIN, Spring (24617 P/N 454516)	3	
-2	300-10-B	. UNIVERSAL JOINT (03705) (81490 P/N E99-193)	1	
-3	E99-0125	. ROD, Transfer	1	
-4	E99-499	. CAPSCREW, Socket head, 1/4-20 by 3/4 inch	5	
-5	MS35223-79	. SCREW, Machine (81490 P/N E99-068)	8	
-6	E99-062	. BRACKET, Bearing block to base side	1	
-7	E99-111	. BRACKET, Bearing block to base bottom	1	
-8	E99-087	. BLOCK, Bearing	1	
-9	MS9047-137	. PIN, Spring (81490 P/N E99-369)	1	
-10	300-10-B	. UNIVERSAL JOINT (03705) (81490 P/N E99-193)	2	
-11	105-KSZZ	. BEARING, Ball (38443) (81490 P/N E99-064)	2	
-12	5108-100	. RING, Retaining (79136) (81490 P/N E9-560)	2	
-13	E99-026	. ADAPTER, Lift crank	1	
-14	MS35223-79	. SCREW, Machine (81490 P/N E99-068)	3	
-15	E99-499	. CAPSCREW, Socket head, 1/4-20 by 3/4 inch	5	
-16	E99-515	. GEAR BOX ASSEMBLY, Vertical (see Figure 8 for replacement parts)	1	
-17	E99-499	. CAPSCREW, Socket head, 1/4-20 by 3/4 inch	6	
-18	E99-061	. COLUMN ASSEMBLY (See Figure 9 for replacement parts)	1	
-19	S-142	. PLUG, Tank inlet (86343) (81490 P/N E99-089)	1	
-20	E99-091	. GASKET, Inlet plug	1	
-21	S-102	. PLUG, Tank drain (86343) (81490 P/N E99-090)	1	
-22	E99-092	. GASKET, Drain plug	1	
3-	E99-012	. BASE AND CASTER ASSEMBLY	1	
-23	E99-539	. . CAPSCREW, Hex washer head, 1/4-20 by 1 inch	8	
-24	E99-479	. . CAP, Caster	4	
-25	E99-491	. . PEDAL AND LINK ASSEMBLY	4	
-26	E99-522	. . SLEEVE, Nylon, split	8	
-27	E99-484	. . RETAINER, Spring	4	
-28	E99-099	. . SPRING, Compression	4	
-29	E99-097	. . WASHER, Thrust	4	
-30	E99-487	. . SCREW, Machine, flat head, 5/8-11 by 1-3/4 inch	4	
-31	E99-044	. . PAD, Foot	4	
-32	E99-043	. . SHAFT, Jack	4	
-33	124925	. . NUT, Hex jam, 3/8-24 (24617)	4	
-34	124128	. . BOLT, Hex head, 3/8-24 by 3 inches (24617)	4	
-35	E99-495	. . WHEEL, Caster	4	
-36	E99-540	. . SLEEVE, Caster wheel	4	
-37	E99-494	. . RING, Retaining	4	
-38	E99-489	. . FORK ASSEMBLY, Caster	4	
-39	E99-038	. . SHAFT, Vertical	4	
-40	1612	. . RACE, Roller bearing (60380) (81490 P/N E99-478)	8	
-41	E99-490	. . SPACER, Sleeve	4	
-42	E99-073	. . BASE ASSEMBLY, Welded	1	

FIG. & INDEX NO.	PART NO.	1 2 3 4 5 6 7 DESCRIPTION	UNITS PER ASSY	USABLE ON CODE
		OPERATING TABLE COMPONENTS		
2-1	E99-553	. HEAD SECTION ASSEMBLY (See Figure 4 for replacement parts)	1	
-2	E99-272	. SCREW, Machine, pan head, 10-32 by 1/2 inch	4	
-3	LT1504C6-10	. LANYARD, Release pin (84256) (81490 P/N E99-368)	4	
-4	MS17984C722A	. PIN, Release, leg index (81490 P/N E99-096)	2	
-5	MS17984C752A	. PIN, Release, leg support (81490 P/N E99-106)	2	
-6	No Number	. LEG AND INDEX ASSEMBLY, L.H. (See Figure 5 for replacement parts)	NP	
-7	No Number	. LEG AND INDEX ASSEMBLY, R.H. (See Figure 5 for replacement parts)	NP	
-8	E99-272	. SCREW, Machine, pan head, 10-32 by 1/2 inch	2	
-9	LT1504C6-10	. LAYNYARD, Release pin (84256) (81490 P/N E99-368)	2	
-10	MS17984C722A	. PIN, Release, back link (81490 P/N E99-096)	2	
-11	AN565AC1032	. SETSCREW, Hex socket flat point (81490 P/N E99-022)	2	
-12	E99-036	. PIN, Pivot, back link	2	
-13	No Number	. LIFT AND BODY SECTION ASSEMBLY (See Figure 6 for replacement parts)	NP	
-14	AN340C516	. NUT, Plain hex, 5/16-18NC (81490 P/N E99-552)	8	
-15	E99-485	. CAPSCREW, Socket head, 5/16-18 by 1-3/4 inch	8	
-16	E99-570	. CAPSCREW, Socket head, 10-32 by 7/8 inch	4	
-17	E99-301	. PIN, Adjusting	3	
-18	E99-047	. PIN, Adjusting	1	
-19	E99-590	. SCREW ASSEMBLY, Lateral (see Figure 7 for replacement parts)	1	
-20	E99-509	. SCREW ASSEMBLY, Drive (see Figure 7 for replacement parts)	1	
-21	E99-555	. CAPSCREW, Socket head, 3/8-16 by 1-3/4 inch	4	
-22	E99-054	. BLOCK, Bearing	2	
-23	E99-233	. FRAME, Seat	1	
-24	AN505C516R10	. SCREW, Machine (81490 P/N E99-303)	6	
-25	E99-124	. RAIL, Seat	2	
-26	E99-253	. RING, Retaining	2	
-27	E99-046	. WASHER, Nylon	2	
-28	E99-057	. PIN, Trendelenberg	1	
-29	E99-035	. CAPSCREW, Socket head, 3/8-16 by 1/2 inch	2	
-30	E99-033	. WASHER, Flat	2	
-31	E99-056	. PIN, Lateral	1	
-32	E99-458	. TRUNNION ASSEMBLY	1	
-33	E99-034	. WASHER, Nylon	1	
-34	E99-252	. CAPSCREW, Socket head, 5/16-24 by 1-1/4 inch	4	
-35	E99-213	. BRACKET, Drive screw	1	

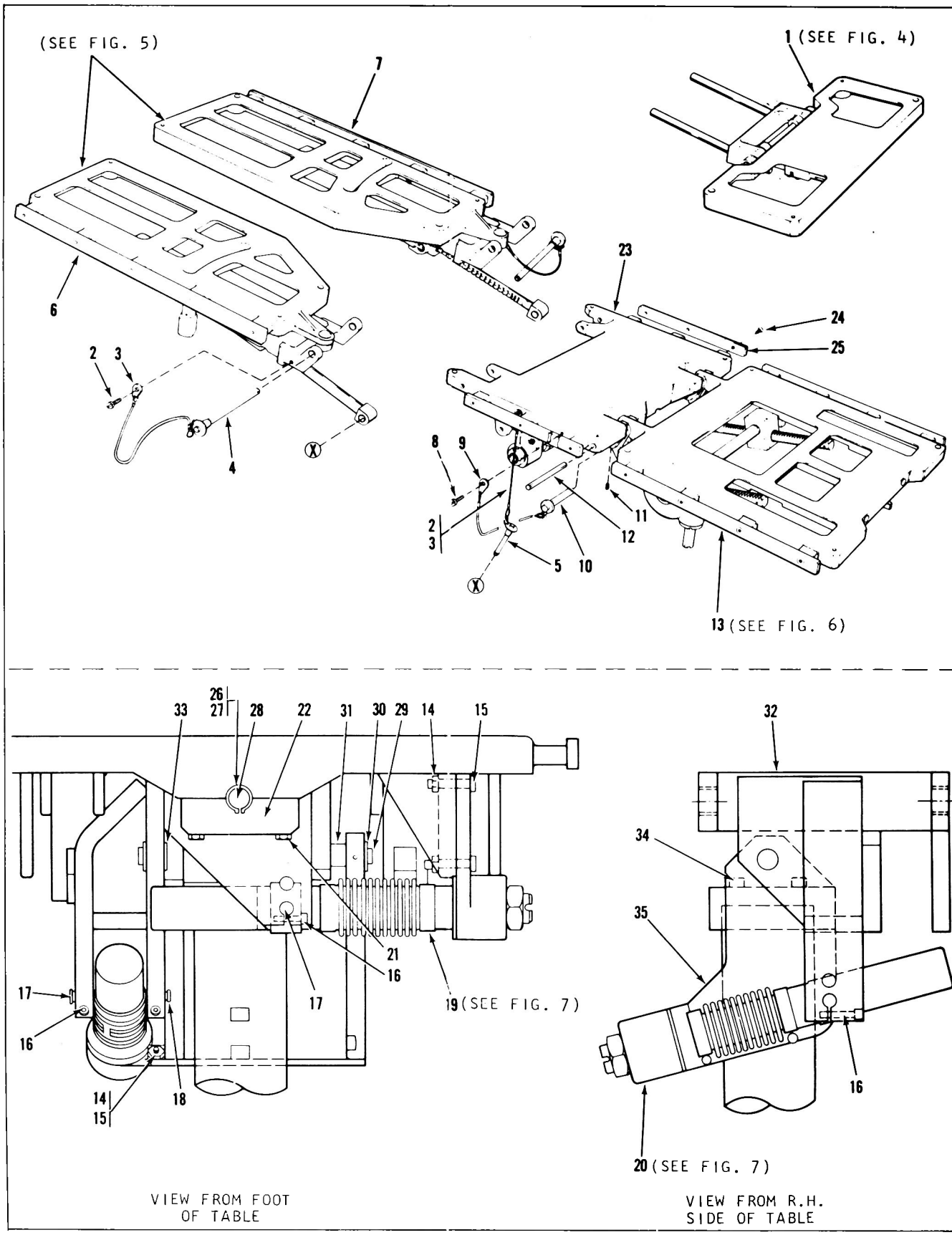
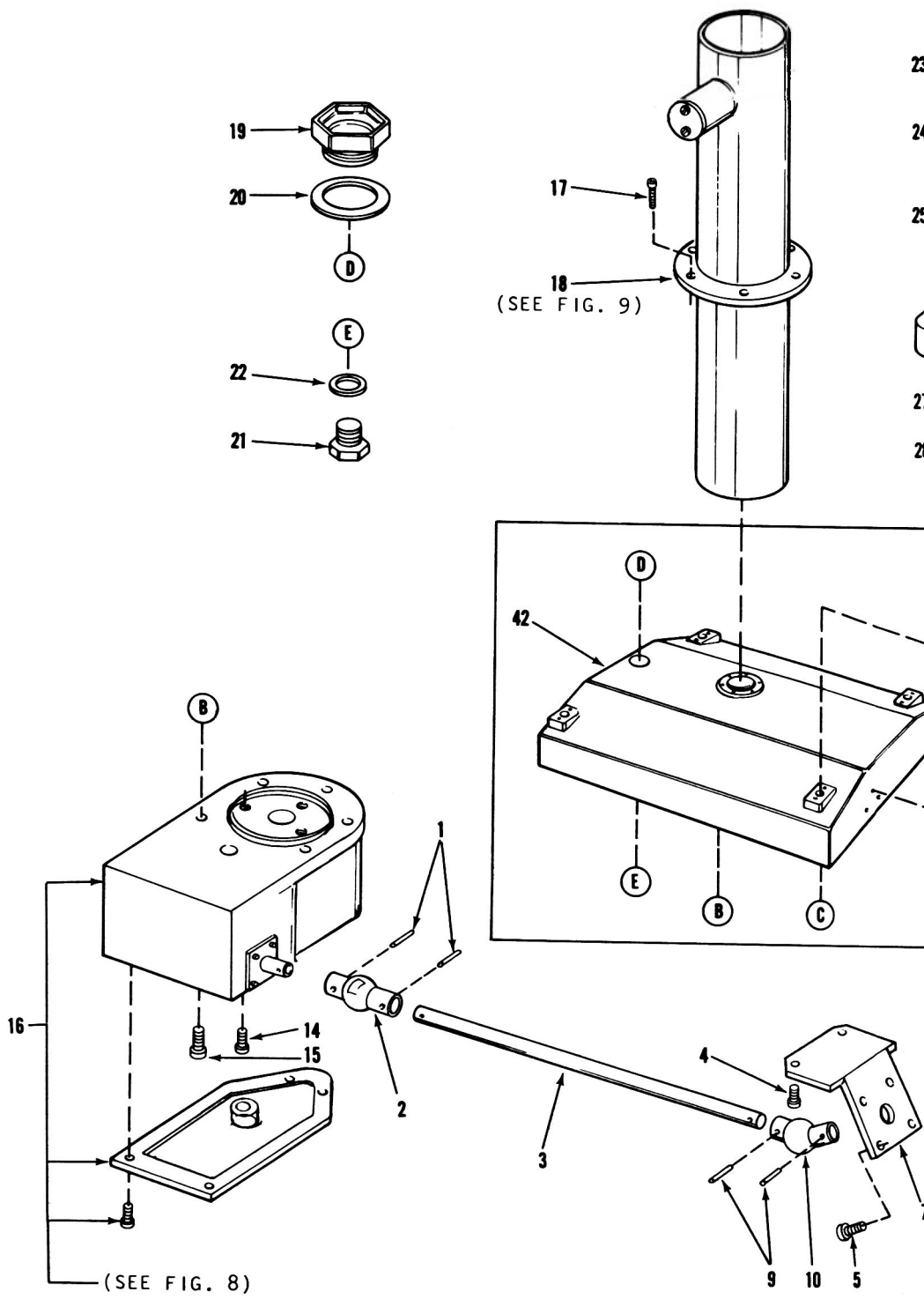


Figure 2. Operating Table Components


19
20
D
E
22
21
17
18
(SEE FIG. 9)
42
D
E
B
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B
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(SEE FIG. 8)

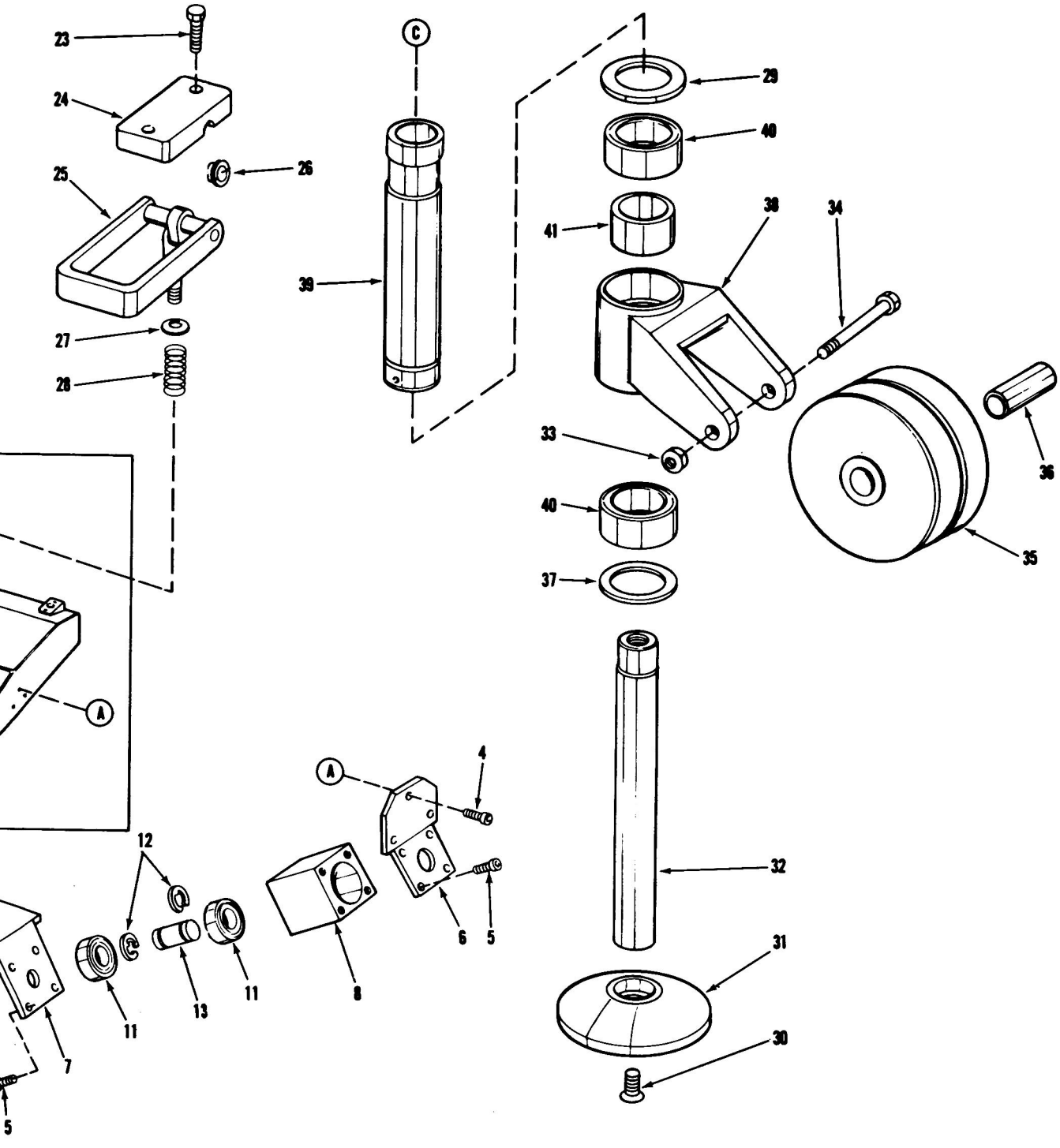


Figure 3. Operating Table Components

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		HEAD SECTION ASSEMBLY		
4-	E99-553	HEAD SECTION ASSEMBLY	REF	
-1	E99-272	. SCREW, Machine, pan head, 10-32 by 1/2 inch	4	
-2	E99-596	. PLATE, Ratchet release	1	
-3	E99-272	. SCREW, Machine, pan head, 10-32 by 1/2 inch	4	
-4	E99-591	. PLATE, Pivot retainer	2	
-5	E99-594	. BAR, Actuator	2	
-6	490132	. SPRING, Compression (24617)	2	
-7	E99-028	. WASHER, Nylon	2	
-8	E99-593	. ROD, Pivot	1	
-9	AN565AC8H2	. SETSCREW, Hex socket flat point (81490 P/N E99-024)	2	
-10	E99-592	. PAWL, Acutator	2	
-11	E99-316	. PIN, Dowel, CRES, 3/16 inch diameter by 1-1/4 inch	2	
-12	AN565AC1032H3	. SETSCREW, Hex socket flat point (81490 P/N E99-022)	2	
-13	E99-595	. SHAFT, Head pivot	1	
-14	E99-341	. PIVOT, Head frame	1	
-15	E99-597	. RATCHET, Head	2	
-16	E99-023	. KEY, Square, 3/16 inch by 3/4 inch long	2	
-17	E99-316	. PIN, Dowel, CRES, 3/16 inch diameter by 1-1/4 inch	2	
-18	E99-101	. ROD, Head extension	2	
-19	E99-027	. NUT, Castle, 1/2-13NC	2	
-20	E99-470	. BEARING ASSEMBLY, Pivot	2	
-20A	AA-710-19	. . BEARING, Sleeve (71041) (81490 P/N E99-309)	1	
-20B	E99-151	. . BLOCK, Bearing	1	
-21	E99-339	. FRAME, Head	1	

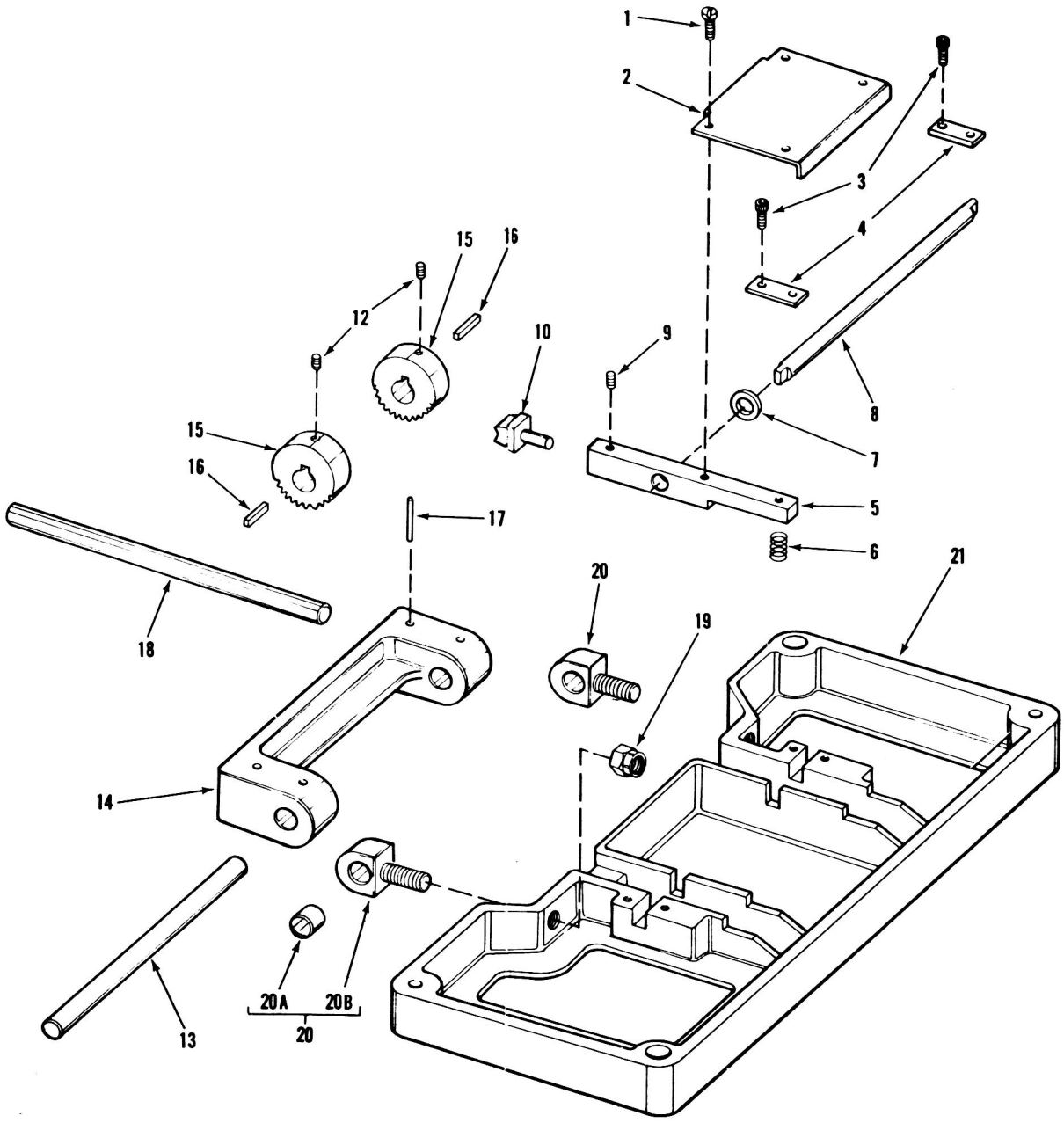


Figure 4. Head Section Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		RIGHT AND LEFT HAND LEG AND INDEX ASSEMBLIES		
		CODE A — L.H. LEG ASSEMBLY ONLY CODE B — R.H. LEG ASSEMBLY ONLY		
5-	No Number	LEG AND INDEX ASSEMBLY, L.H.	REF	A
5-	No Number	LEG AND INDEX ASSEMBLY, R.H.	REF	B
-1	E99-323	. PIN, Dowel	1	
-2	E99-004	. INDEX ASSEMBLY, Leg	1	
-3	MS9047-172	. . PIN, Spring (24617 P/N 456693)	1	
-4	E99-347	. . HANDLE, Release	1	
-5	E99-156	. . SPRING, Compression	1	
-6	MS9047-099	. . PIN, Spring (24617 P/N 456335)	1	
-7	E99-107	. . PLUNGER	1	
-8	E99-129	. . ROD, Index	1	
-9	MS9047-164	. . PIN, Spring (81490 P/N E99-369)	1	
-10	E99-116	. . BLOCK, Pivot	1	
-11	E99-365	. . HOUSING ASSEMBLY, Index	1	
-12	MS9047-106	. PIN, Spring (24617 P/N 455862)	1	
-13	E99-536	. KNOB, Swivel lock	1	
-14	E99-145	. SCREW, Clamp	1	
-15	E99-051	. WASHER, Nylon	1	
-16	5131-50H	. RING, Retaining (79136) (81490 P/N E99-110)	1	
-17	E99-158	. PIN, Pivot	1	
-18	E99-051	. WASHER, Nylon	1	
-19	E99-362	. SUPPORT ASSEMBLY, Leg	1	
-20	AN505C516R10	. SCREW, Machine (81490 P/N E99-303)	5	
-21	E99-121	. RAIL, Leg	1	
-22	E99-363	. LEG ASSEMBLY, L.H.	1	A
-22	E99-364	. LEG ASSEMBLY, R.H.	1	B
-23	No Number	. WASHER, Nylon		

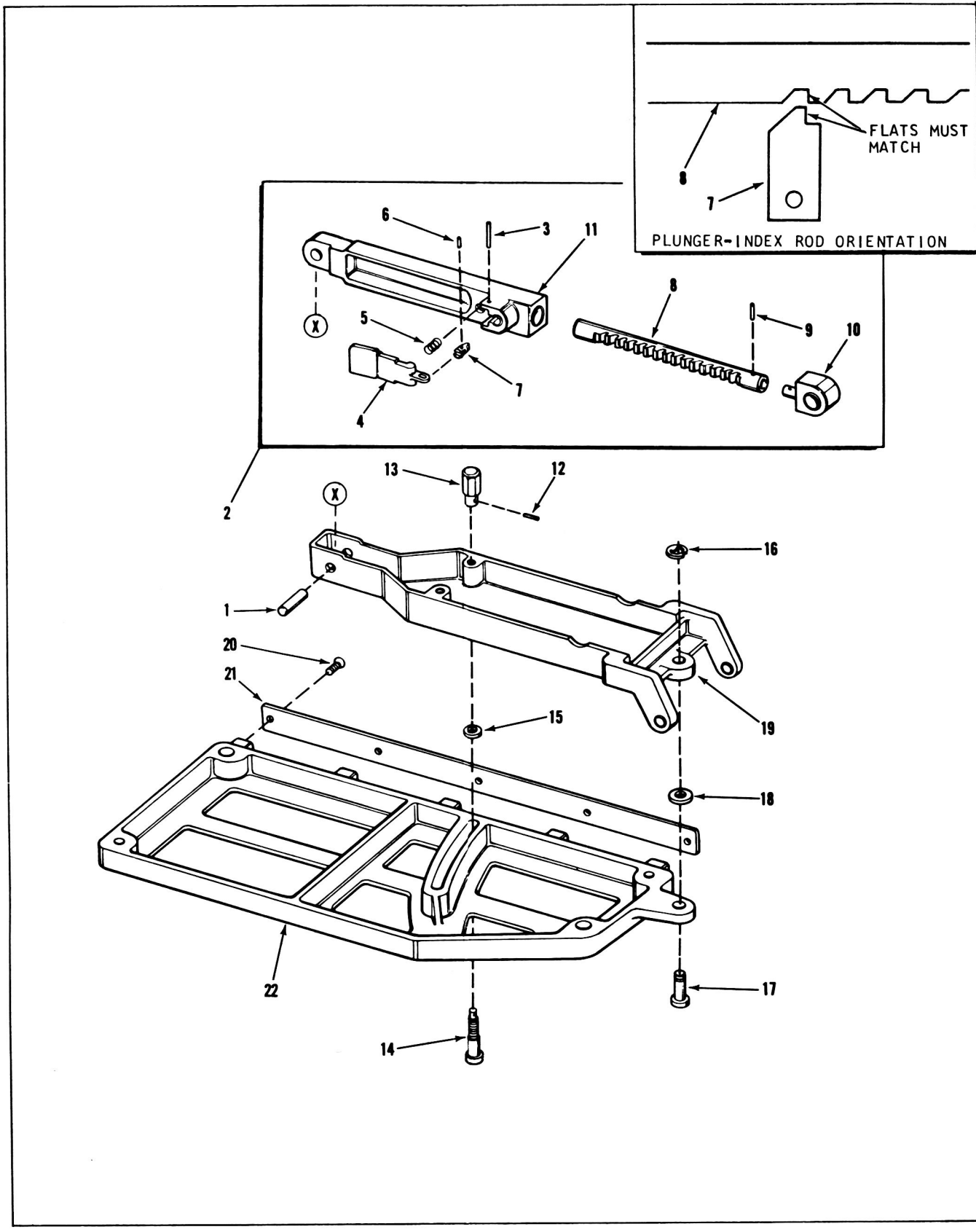


Figure 5. Right and Left Hand Leg and Index Assemblies

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		COMPLETE LIFT AND BACK SECTION		
6-	No Number	LIFT AND BACK SECTION, Complete	REF	
-1	E99-349	. KNOB ASSEMBLY, Head locking	2	
-2	AN505C516R10	. SCREW, Machine (81490 P/N E99-303)	8	
-3	E99-123	. RAIL, Back	2	
-4	E99-326	. PIN, Dowel, CRES, 3/8 inch diameter by 1-1/2 inch	2	
-5	E99-126	. LINK ASSEMBLY, Back	2	
-6	E99-485	. CAPSCREW, Socket head, 5/16-18 by 1-3/4 inch	2	
-7	E99-575	. CAPSCREW, Socket head, 5/16-18 by 3/4 inch	4	
-8	E99-141	. FRAME ASSEMBLY, Back	1	
-9	E99-167	. BACK LIFT ASSEMBLY, Complete	1	
-10	E99-273	. . CAPSCREW, Socket head, 10-24 by 3/8 inch	3	
-11	E99-140	. . RETAINER, Bearing	1	
-12	MS9047-106	. . PIN, Spring (24617 P/N 455862)	1	
-13	E99-586	. . ADAPTER, Crank handle	1	
-14	7102-KR	. . BEARING, Ball (38443) (81490 P/N E99-329)	1	
-15	E99-142	. . SPACER, Sleeve	1	
-16	20201	. . BEARING, Ball (43334) (81490 P/N E99-321)	1	
-17	E99-144	. . SPACER, Sleeve	1	
-18	E99-283	. . WORM GEAR	1	
-19	E99-275	. . KEY, Square, 1/8 by 1/8 by 7/8 inch	1	
-20	MS16624-3050	. . RING, Retaining (81490 P/N E99-287)	1	
-21	E99-150	. . SHAFT, Worm gear	1	
-22	P17S	. . PLUG, Expansion (72741) (81490 P/N E99-332)	1	
-23	E99-148	. . BLOCK, Support	1	
-24	E99-454	. . SPACER, Sleeve	1	
-25	M-10121	. . BEARING, Roller (60380) (81490 P/N E99-333)	1	
-26	E99-268	. . CAPSCREW, Socket head, 1/4-20 by 1/2 inch	4	
-27	E99-344	. . HOUSING, Gear box	1	
-28	M-10121	. . BEARING, Roller (60380) (81490 P/N E99-333)	1	
-29	AN565EC416H4	. . SETSCREW (81490 P/N E99-453)	2	
-30	E99-143	. . GEAR, Worm wheel	1	
-31	E99-336	. . KEY, Square, 3/16 by 3/16 by 1 inch	1	
-32	E99-345	. . COVER, Gear box	1	
-33	B-107	. . BEARING, Roller (60380) (81490 P/N E99-072)	1	
-34	141153	. . PIN, Dowel, 3/16 inch diameter by 5/8 inch (24617)	2	
-35	E99-147	. . SPACER, Sleeve	1	
-36	E99-268	. . CAPSCREW, Socket head, 1/4-20 by 1/2 inch	8	
-37	E99-452	. . HOUSING ASSEMBLY, Gear rack	2	
-37A	E99-467	. . . BEARING, Sleeve (altered 71041 P/N B-1013-4)	1	
-37B	E99-104	. . . HOUSING, Gear rack	1	
-38	E99-456	. . RACK AND BEARING ASSEMBLY, Gear	2	
-38A	B-68-4	. . . BEARING, Sleeve (71041) (81490 P/N E99-469)	1	
-38B	E99-105	. . . RACK, Gear	1	
-39	MS9047-172	. . PIN, Spring (24617 P/N 456693)	2	
-40	E99-149	. . GEAR, Spur	2	
-41	E99-336	. . KEY, Square, 3/16 by 3/16 by 1 inch	2	
-42	E99-451	. . COVER AND BEARING ASSEMBLY	2	
-42A	E99-468	. . . BEARING, Sleeve (altered 71041 P/N B-1013-4)	1	
-42B	E99-109	. . . COVER, Gear rack housing	1	
-43	141153	. . PIN, Dowel, 3/16 inch diameter by 5/8 inch (24617)	4	
-44	E99-146	. . SPACER, Sleeve	2	
-45	E99-113	. . SHAFT, Pinion	1	

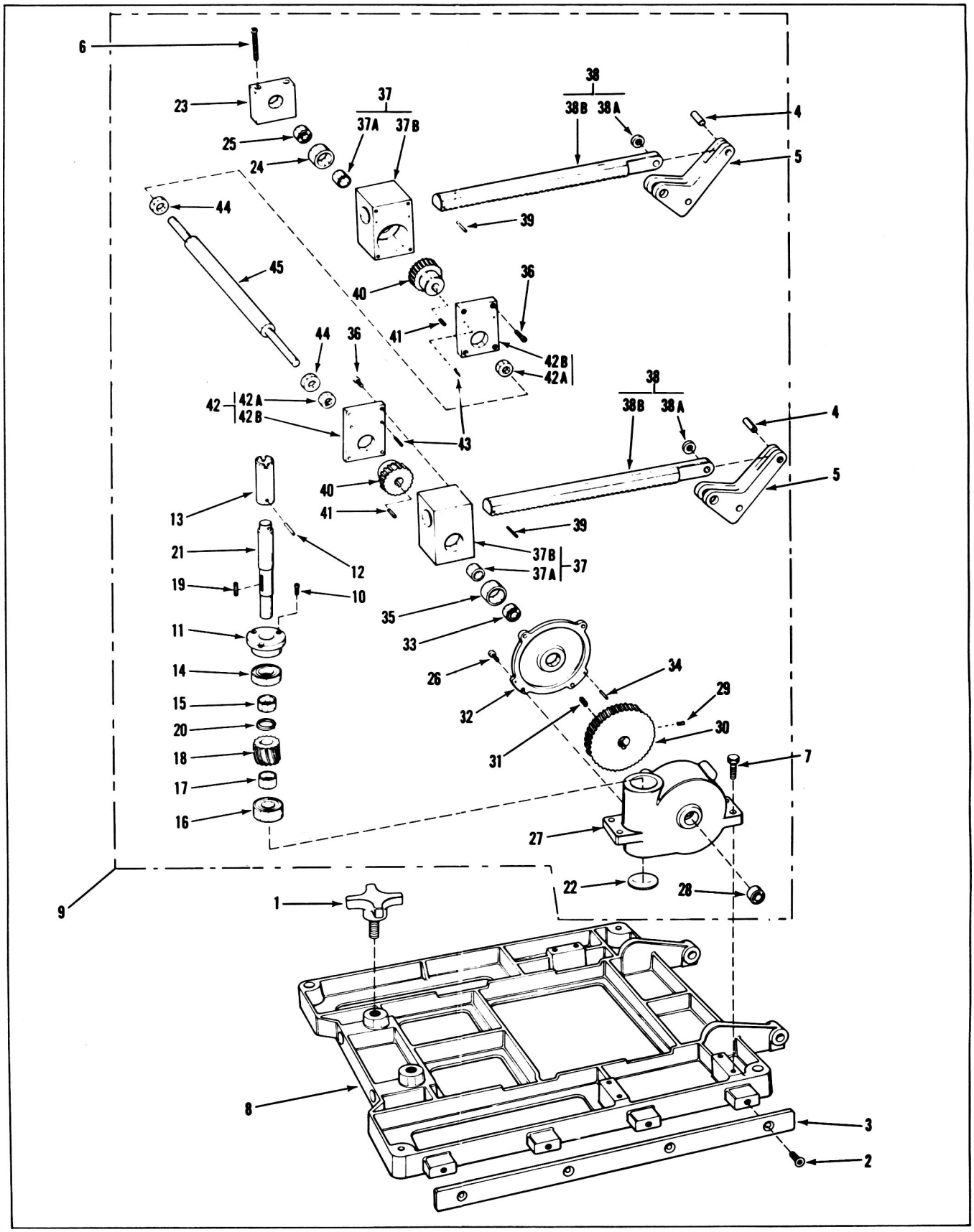


Figure 6. Complete Lift and Back Section

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE

DRIVE AND LATERAL SCREW ASSEMBLIES

CODE A — USED ON LATERAL SCREW ASSEMBLY ONLY
CODE B — USED ON DRIVE SCREW ASSEMBLY ONLY

7-	E99-509	SCREW ASSEMBLY, Drive	REF	A
7-	E99-590	SCREW ASSEMBLY, Lateral	REF	B
-1	E99-256	. CAPSCREW, Socket head, 5-40 by 3/16 inch	2	
-2	E99-112	. COVER, Boot, closed end	1	A
-2	E99-067	. COVER, Boot, closed end	1	B
-3	MS9047-168	. PIN, Spring (96906) (24617 P/N 456652)	1	
-4	E99-065	. WASHER, Flat	1	
-5	E99-327	. CAPSCREW, Socket head, 8-32 by 1/2 inch	1	
-6	E99-055	. NUT, Adjustment	1	
-7	QS-100-MS	. CLAMP, Hose (73682) (81490 P/N E99-258)	2	
-8	E99-070	. COVER, Boot, straight	1	
-9	E99-066	. COVER, Expandable	1	
-10	E99-256	. CAPSCREW, Socket head, 5-40 by 3/16 inch	3	
-11	E99-071	. COVER, Boot, flanged	1	
-12	141159	. PIN, Dowel, 3/16 inch diameter by 1 inch (24617)	2	
-13	E99-060	. LEADSCREW	1	
-14	E99-065	. WASHER	1	
-15	E99-589	. UNIVERSAL JOINT	1	A
-15	E99-189	. UNIVERSAL JOINT	1	B
-16	AN565DC416H4	. SETSCREW, Hex socket head (81490 P/N E99-315)	1	
-17	E99-063	. NUT, Lock	1	
-18	5100-112H	. RING, Retaining (79136) (81490 P/N E99-561)	1	
-19	E99-029	. SHAFT, Adjustment	1	A
-19	E99-069	. SHAFT, Adjustment	1	B
-20	B-542-DD	. BEARING, Ball (21335) (81490 P/N E99-262)	2	
-21	E99-527	. SPACER, Bearing	2	
-22	TRB-1828	. RACE, Thrust (60380) (81490 P/N E99-480)	4	
-23	NTA-1828	. BEARING, Thrust (60380) (81490 P/N E99-511)	2	
-24	E99-150	. BRACKET, Bearing	1	

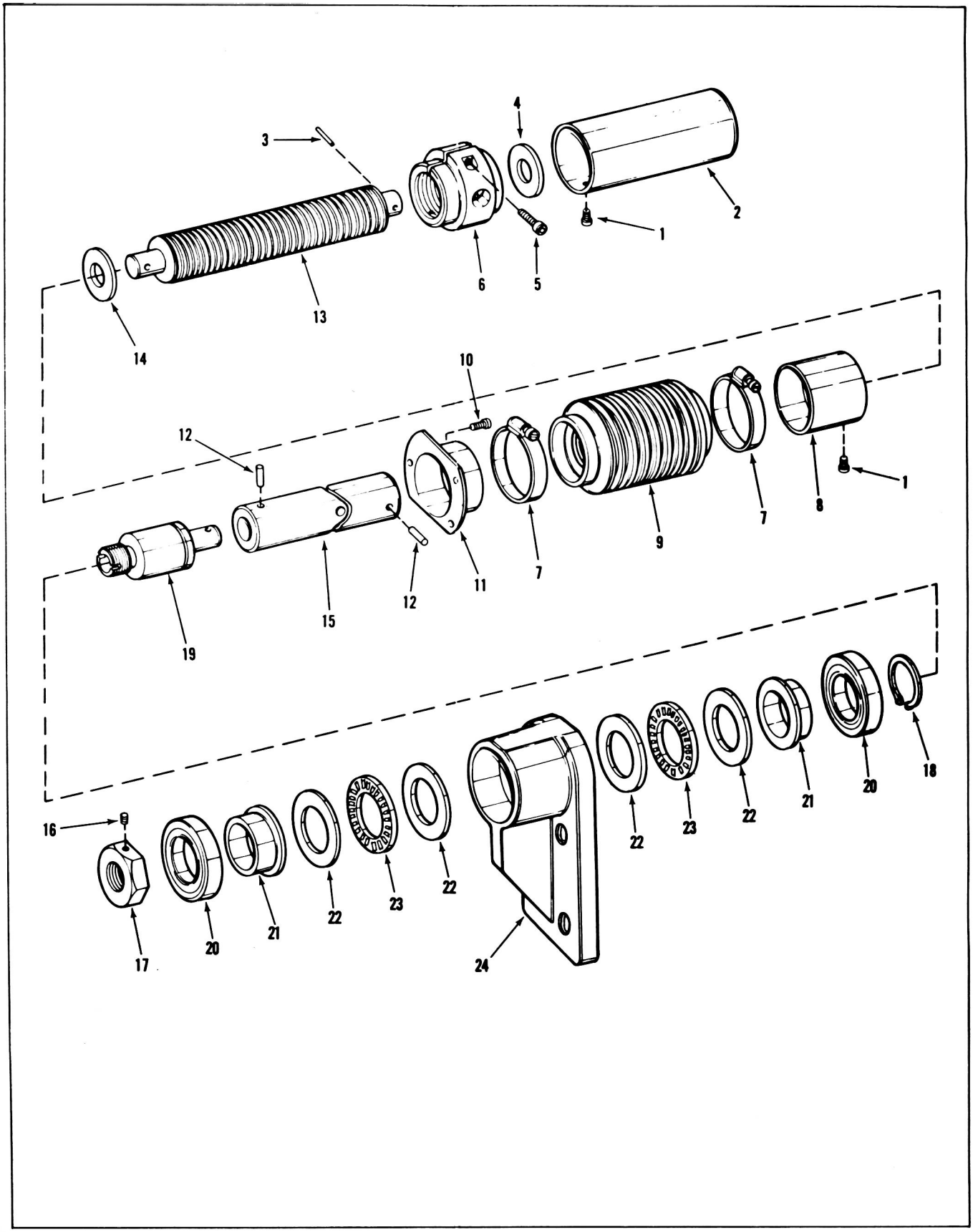


Figure 7. Drive and Lateral Screw Assemblies

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		VERTICAL GEAR BOX ASSEMBLY		
8-	E99-515	GEAR BOX ASSEMBLY, Vertical	REF	
-1	E99-273	. CAPSCREW, Socket head, 10-24 by 3/8 inch	4	
-2	E99-379	. COVER, Gear box	1	
-3	141155	. PIN, Dowel, 3/16 inch diameter by 3/4 inch (24617)	2	
-4	M-6101	. BEARING, Roller (60380) (81490 P/N E99-269)	1	
-5	E99-541	. CAPSCREW, Socket head, 10-24 by 5/8 inch	4	
-6	E99-013	. RETAINER, Bearing	1	
-7	E99-500	. LOCKNUT, Special	1	
-8	E99-501	. LOCKWASHER, Special	1	
-9	E99-007	. SHAFT, Worm	1	
-10	5202-SBKF	. BEARING, Ball (38443) (81490 P/N E99-282)	1	
-11	MS16624-3050	. RING, Retaining (81490 P/N E99-287)	1	
-12	E99-283	. WORM GEAR	1	
-13	E99-275	. KEY, Square, 1/8 by 1/8 by 7/8 inch	1	
-14	8121	. BEARING, Roller (60380) (81490 P/N E99-267)	1	
-15	E99-008	. SHAFT, Gear	1	
-16	TRB-613	. RACE, Thrust (60380) (81490 P/N E99-276)	2	
-17	E99-541	. CAPSCREW, Socket head, 10-24 by 5/8 inch	4	
-18	E99-009	. GEAR, Worm	1	
-19	E99-010	. GEAR, Spur	1	
-20	M-65	. BEARING, Roller (60380) (81490 P/N E99-265)	1	
-21	E99-378	. HOUSING, Gear	1	

NOTE: Index no. -11 (E99-287) has been changed to a SPIROL PIN 1/8 dia. x 3/4" long. Vendor Code 55732 Atlantic

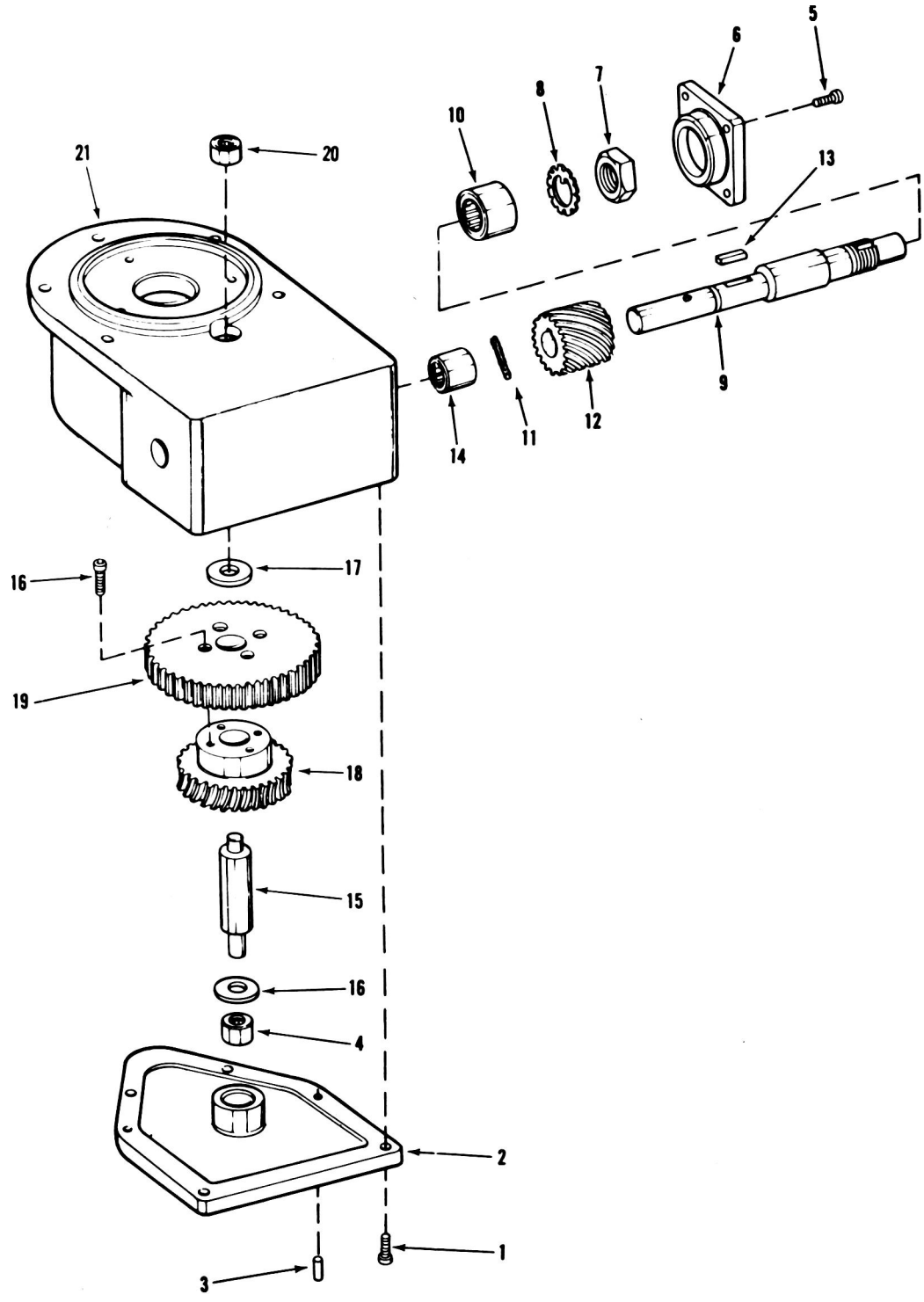
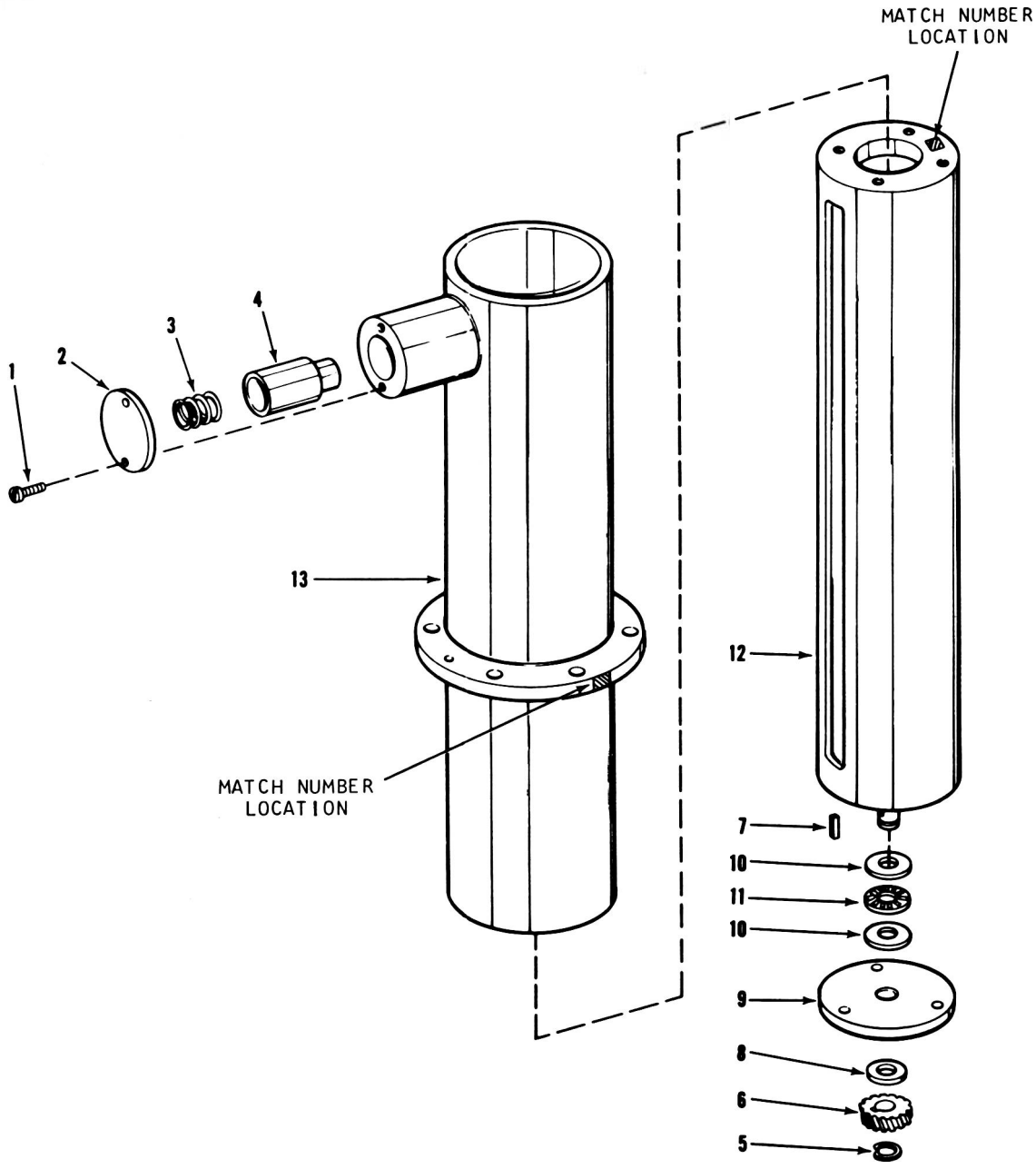


Figure 8. Vertical Gear Box Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		COLUMN ASSEMBLY		
9-	E99-061	COLUMN ASSEMBLY	REF	
-1	E99-272	. SCREW, Machine, pan head, 10-32 by 1/2 inch	2	
-2	E99-020	. COVER, Housing	1	
-3	E99-188	. SPRING, Compression	1	
-4	E99-021	. KEY, Column	1	
-5	MS16624-3050	. RING, Retaining (81490 P/N E99-287)	1	
-6	E99-011	. GEAR, Worm	1	
-7	E99-507	. KEY, Square, 1/8 by 1/8 by 7/16 inch	1	
-8	TB-812	. WASHER, Thrust (60380) (81490 P/N E99-290)	1	
-9	E99-463	. RETAINER, Bearing	1	
-10	TRB-815	. RACE, Thrust (60380) (81490 P/N E99-284)	2	
-11	NTA-815	. BEARING (60380) (81490 P/N E99-288)	1	
-12	E99-512	. COLUMN ASSEMBLY, Sliding	1	
-13	E99-504	. COLUMN ASSEMBLY, Outer	1	
-14	E99-287	. SPIROL PIN 1/8 Dia. x 3/4 Long	1	

NOTE: Index no. -5 E99-027 has been changed to a CASTLE NUT 1/2-20. Vendor Code 55732 Atlantic Industries.



NOTE: THE TWO COLUMNS (12) AND (13) ARE REPLACEABLE ONLY AS A MATCHED SET. THE MATCH NUMBERS ARE LOCATED AS SHOWN.

Figure 9. Column Assembly

FIG. & INDEX NO.	PART NO.	DESCRIPTION 1 2 3 4 5 6 7	UNITS PER ASSY	USABLE ON CODE
		ACCESSORY STORAGE ASSEMBLY		
10-	E99-200	STORAGE ASSEMBLY, Accessory	REF	
-1	E99-186	. HANDLE ASSEMBLY, Lateral	2	
-2	E99-187	. HANDLE ASSEMBLY, Trendelenburg	2	
-3	E99-212	. CUP, Litter	4	
-4	E99-232	. SCREEN, Anesthetist	1	
-5	E99-234	. BRACKET, Shoulder support	2	
-6	E99-222	. OFFSET, Leg holder	2	
-7	E99-217	. STRAP, Body restraint	2	
-8	E99-576	. STRAP, Wrist restraint	2	
-9	E99-203	. CLAMP, Anesthetist screen	2	
-10	E99-207	. CLAMP, Accessory	8	
-11	E99-209	. WRISTLET	2	
-12	E99-211	. BRACKET, Shoulder support	2	
-13	E99-317	. BOARD ASSEMBLY, Arm	2	
-14	E99-582	. KNOB ASSEMBLY, Accessory	6	
-15	E99-584	. KNOB ASSEMBLY, Anesthetist	2	
-16	E99-162	. PAD, Mattress, back and seat	1	
-17	E99-165	. PAD, Mattress, head	1	
-18	E99-163	. PAD, Mattress, leg, L.H.	1	
-19	E99-164	. PAD, Mattress, leg, R.H.	1	
-20	E99-218	. PAD, Mattress, arm board	2	
-21	E99-237	. PAD, Mattress, shoulder	2	
-22	E99-526	. PAD, Mattress, foot rest	1	
-23	E99-231	. SUPPORT ASSEMBLY, Foot	1	
-24	E99-440	. CASE ASSEMBLY, Storage	1	
	E99-553	. HEAD SECTION ASSEMBLY (See Figure 4 for replacement parts)	REF	
		SHIPPING CONTAINER ASSEMBLY		
11-	E99-400	CONTAINER ASSEMBLY, Shipping	REF	
-1	227093	. SCREW, Machine, flat head, 6-32 NC (24617)	108	
-2	E99-176	. GUARD, Corner, top section	4	
-3	E99-177	. GUARD, Corner, bottom section	4	
-4	E99-173	. GUARD, Bottom section, short	2	
-5	E99-174	. GUARD, Bottom section, long	2	
-6	E99-403	. STRAP SET, Webbed	2	

PART NO.	FIG. & INDEX NO.
E99-515	3-16, 8-
E99-522	3-26
E99-526	10-22
E99-527	7-21
E99-536	5-13
E99-539	3-23
E99-540	3-36
E99-541	8-5, 8-17
E99-552 (See AN340C516)	
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E99-561 (See 5100-112H)	
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E99-564	1-9
E99-565	1-10
E99-566	1-11
E99-567	1-12
E99-570	2-16
E99-575	6-7
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M-6101	8-4
M-65	8-20
MS16624-3050	6-20, 8-11, 9-5
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MS17984C752A	2-5
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MS9047-099	5-6
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MS9047-137	3-9
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NTA-1828	7-23
NTA-815	9-11
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QS-100-MS	7-7
S-102	3-21
S-142	3-19

PART NO.	FIG. & INDEX NO.
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TRB-1828	7-22
TRB-613	8-16
TRB-815	9-10
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124925	3-33
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141155	8-3
141159	7-12
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20201	6-16
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454516 (See MS9047-133)	
455862 (See MS9047-106)	
456335 (See MS9047-099)	
456652 (See MS9047-168)	
456693 (See MS9047-172)	
490132	4-6
5100-112H	7-18
5108-100	3-12
5131-50H	5-16
5202-SBKF	8-10
7102-KR	6-14
8121	8-14

NUMERICAL INDEX OF PARTS

PART NO.	FIG. & INDEX NO.
AA-710-19	4-20A
AN340C516	2-14
AN505C516R10	1-5, 2-24, 5-20, 6-2
AN565AC1-32H3	2-11, 4-12
AN565AC8H2	4-9
AN565DC416H4	7-16
AN565EC416H4	6-29
B-107	6-33
B-542-DD	7-20
B-68-4	6-38A
E99-001	1-3
E99-004	5-2
E99-007	8-9
E99-008	8-15
E99-009	8-18
E99-010	8-19
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